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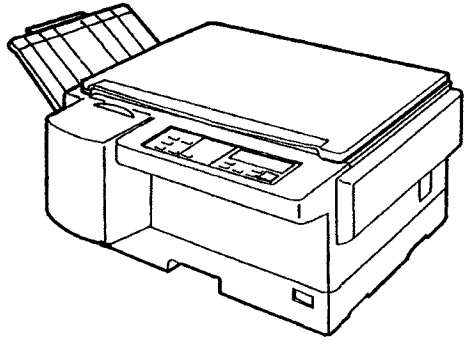
Service Manual

Plain Paper Copier

FP-7113



Panasonic

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It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

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For U.K.

FOR YOUR SAFETY PLEASE READ THE FOLLOWING TEXT CAREFULLY.
This appliance is supplied with a moulded three pin mains plug for your safety and convenience. A 13 amp fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 13 amps and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ⓐ or the BSI mark ♡ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local Panasonic Dealer.

IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR OFFICE THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13 AMP SOCKET.
If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

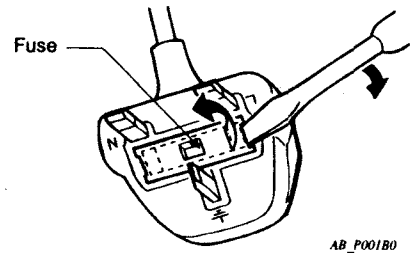
WARNING : THIS APPLIANCE MUST BE EARTHED.

IMPORTANT : The wires in this mains lead are coloured in accordance with the following code:

Green and Yellow	:Earth
Blue	:Neutral
Brown	:Live

As the colours of the wires in the main lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked by letter E or by the safety EARTH symbol "⏚" or coloured GREEN or GREEN-AND-YELLOW.
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.
The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

How to replace the fuse.
Open the fuse compartment with a screwdriver and replace the fuse.



For Sweden, and Denmark

SPECIALSÄKRING: ENDAST AV APPARATFABRINKANTEN LEVERERAD SÄKRING FåR ANVÄNDAS.

VARNING!
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

ADVARSEL!
Lithiumbatteri—Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Lever det brugte batteri tilbage til leverrandoren.

CAUTION!
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Section I
Introduction

1.1 Specifications

1. Type: Desktop
2. Copy process: Electrostatic photographic method
3. Development process: Two-component magnetic brush
4. Maximum original size: Ledger (11 in × 17 in)/A3 (297 m × 420 mm)
5. Copy speed:
   Inch area
   7 copies per minute : Ledger size
   8 copies per minute : Legal size
   13 copies per minute : Letter size
   10 copies per minute : Letter R size
   13 copies per minute : Invoice size
   Metric area
   7 copies per minute : A3 size
   8 copies per minute : B4/FLS size
   13 copies per minute : A4 size
   10 copies per minute : A4R size
   13 copies per minute : A5 size
6. First copy time: 6.5 seconds : (Letter/A4 size) (without Auto ode)
   11.5 seconds : (Letter/A4 size) (with Auto Mode)
7. Copy ratio: Enlargement (fixed):

Inch area	Metric area
1:1.41, 1:1.29, 1:1.21	1:1.41, 1:1.22, 1.15

   Reduction (fixed):

Inch area	Metric area
1:0.79, 1:0.77, 1:0.65	1:0.87, 1:0.82, 1:0.71

   Zoom: 1.41–0.65 (1% step)
8. Copy size:
   Inch area
   Ledger : (11 in × 17 in)
   Legal : (8 2/1 in × 14 in)
   Letter : (11 in × 8 2/1 in)
   Letter R : (8 2/1 in × 11 in)
   Invoice : (5 2/1 in × 8 2/1 in)
   Metric area
   A3 : (297 mm × 420 mm)
   B4 : (257 mm × 364 mm)
   Foolscap : (8.5" × 13"), (8" × 13")
   A4 : (297 mm × 210 mm)
   A4R : (210 mm × 297 mm)
   A5 : (148 mm × 210 mm)

9. Paper capacity:	250 sheets paper tray (front loading) + 50 sheets multi-feed bypass	
10. Paper feed:	Push button automatic paper tray + sheet bypass	
11. Paper exit tray capacity:	100 sheets : (20 lb/80 g/m²: Legal/Letter/Invoice /B4/A4/A5 size)	
	50 sheets : (20 lb/80 g/m²: Ledger/A3 size)	
12. Paper weight:	16 to 24 lb/60 to 90 g/m²	
13. Continuous copying:	1-99 automatic reset to 1	
14. Fusing system:	Heat and Pressure	
15. Photoreceptor:	Organic Photoconductor (OPC)	
16. Exposure control:	7 step digital + Photo/Auto button	
17. Warm up time:	Approximately 37 seconds	
18. Optical system:	Conventional internal scan	
19. Misfeed indication:	LED display	
20. Toner supply:	Automatic	
21. Power consumption:	Normal mode	: 100 Wh
	STANDBY mode	: 45 Wh
	Condensation prevention mode	: 15 Wh
	Power saving mode	: 9 Wh
22. Power source:	120V±10%, 12A, 60 Hz	
	220-240V±10%, 50 Hz	
23. Dimensions : (W) X (D) X (H)	25.6 in × 23.9 in × 13.7 in	
	650 × 608 × 347 mm	
24. Weight:	Approximately 72.6 lb/33 kg	
25. Ambient conditions:	Temperature : 50°F to 86°F/10°C to 30°C	
	Relative humidity : 30% to 80%	
	Noise = Standby	: 30 dB
	= Operation	: 45 dB
	Heat emission = Standby	: 130 Wh
	= Operation	: 660 Wh
	Ozone emission	: Less than 0.1 ppm
26. Accessories:	Exit tray	
	Document bag	
	Developer (except North American version)	

* Specifications are subject to change without notice.

1.2 Features

1. **This plain paper copier has been developed using new concepts.**
   - It has a new ergonomic design, which allows the copier to fit neatly in the office environment.

2. **Copy reservation function**
   - No more waiting for warm up; just position the original, enter your job instructions, and press the PRINT key. When warm up is completed, copying starts automatically.

3. **Power saving function (Service mode selection)**
   - To reduce power consumption, after the last copy is made, the power saving function is automatically turned on.

4. **Use of a front-loading mechanism.**
   - The space normally occupied by the plain paper copier has been reduced by installing the paper tray at the front of chassis.

5. **High reliability with improved serviceability.**
   - Due to an extensive pursuit of reliable performance and design concept that provides easier service, the replacement of preventive maintenance parts in each assembly has become simplified.
   - Before a failure occurs in the copier, the service mode can be used to indicate areas to be checked for servicing.
   - When a failure occurs in the copier, the self-diagnostics will indicate the area to be checked.
   - Paper jams can be easily removed from the copier. The sub-assembly design allows easy access to the copier interior and paper path.

6. **Easier operation.**
   - A dual-path paper feeding system, consisting of a paper tray (front-loading) and multi-sheet bypass.
   - The zoom function makes copies that range from 65% reduction to 141% enlargement of the original documents in 1% increments.
   - The Auto Mode provides high-contrast copies of original documents that have a colored background.
   - The Photo Mode clearly reproduces the halftones of photographs.

1.3 Operator controls/indicators

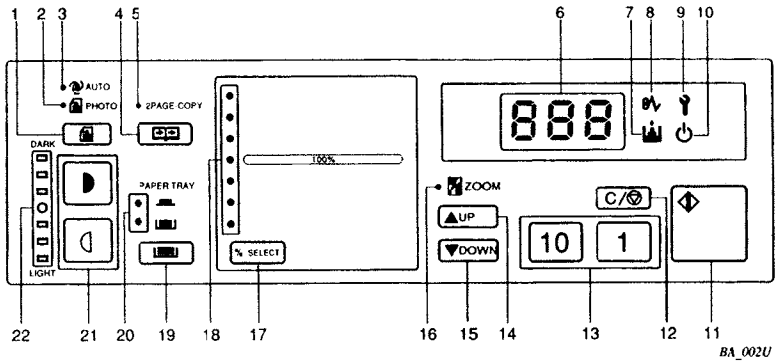


Figure 1-4-1

1. PHOTO/AUTO Mode key
When the copier is turned ON, it is automatically set to AUTO Mode. When this key is pressed, DOCUMENT Mode is selected. When this key is pressed again, PHOTO Mode is selected. When this key is pressed again, AUTO Mode is selected.

2. PHOTO indicator
This indicator lights in PHOTO Mode.

3. AUTO indicator
This indicator lights in AUTO Mode.

4. 2-PAGE COPY key
When this key is pressed, a ledger/A3 original can be copied on 2 separate letter/A4 pages (right and left).

5. 2-PAGE COPY indicator
When the 2-PAGE COPY key is pressed, this indicator lights.

6. DIGIT display
This display can show the number of copies to be made, COPY RATIO, SERVICE MODE, JAM CODE and MACHINE ERROR CODE. Normally this display indicates the number of copies to be made.

7. ADD TONER indicator
When the amount of toner in the toner hopper drops below the required level, this indicator flashes.

8. PAPER JAM indicator
This indicator lights when the copy paper is not fed correctly, and the copier automatically stops.

9. SERVICE CALL indicator
When the number of copies is reached for preventive maintenance, this indicator will flash.

10. WAIT indicator
This indicator lights during warm up. A copy cycle cannot be started when this indicator is ON.

11. PRINT key
When the PRINT key is pressed while the WAIT indicator is OFF, the copy cycle starts.

12. CLEAR/STOP key
During the copy operation, when the CLEAR/STOP key is pressed once, the number of copies remaining will appear in the DIGIT display and the copy operation stops. The copy operation can be restarted by pressing the PRINT key again at this time. When the CLEAR/STOP key is pressed again, the number of copies in the DIGIT display will reset to one. The copy operation is stopped and cleared.

13. MULTI-COPY key
Keys to select the number of copies to be made. Any number up to 99 can be selected.

14. ZOOM UP key
This key is pressed when making zoom copies, (Enlargement). When the UP key is pressed once, the copy ratio is increased by one percent. The copy ratio can be increased in 1% increments by continuosly pressing the UP key.

15. ZOOM DOWN key
This key is pressed when making zoom copies, (Reduction). When the DOWN key is pressed once, the copy ratio is reduced by one percent. The copy ratio can be reduced in 1% increments by continuosly pressing the DOWN key.

16. ZOOM indicator
When the ZOOM UP or DOWN key is pressed, this indicator lights.

17. COPY RATIO SELECT key
This key selects a 1:1, enlargement (fixed) or reduction (fixed) copy.

18. COPY RATIO SELECT indicator
When the COPY RATIO SELECT key is pressed, the selected copy ratio indicator lights.

19. PAPER TRAY key
This key is used to select a paper tray or the sheet bypass.

20. CASSETTE POSITION indicator
This indicator lights "Paper Tray" or "Sheet bypass" position.

21. EXPOSURE keys
Steps of copy density can be selected with 2 keys. When the LIGHT key is pressed, the copy density is varied in the direction of lightness. When the DARK key is pressed, the copy density is varied in the direction of darkness.

22. EXPOSURE indicator
When the copy density is manually selected using the exposure key, the corresponding LED lights according to the density selected. When the LIGHT key is pressed, the indicator moves down. When the DARK key is pressed, the indicator moves up.

1.4 Component location

1. Outer view

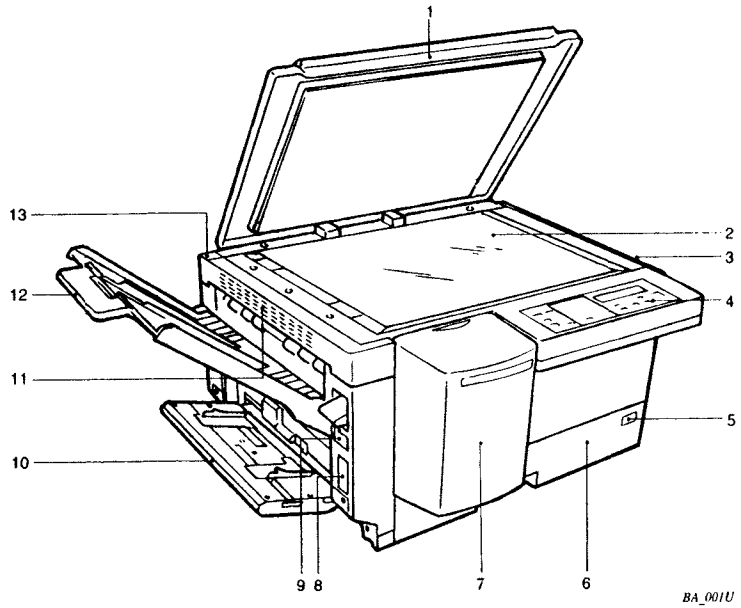


Figure 1-7-1

1. Platen cover
2. Platen glass
3. Right cover
4. Control panel
5. Paper size check window
6. Cassette
7. Toner hopper cover
8. Power switch
9. Release lever
10. Multi-sheet bypass
11. Left cover (upper)
12. Paper exit tray
13. Rear cover

2. Electrical components

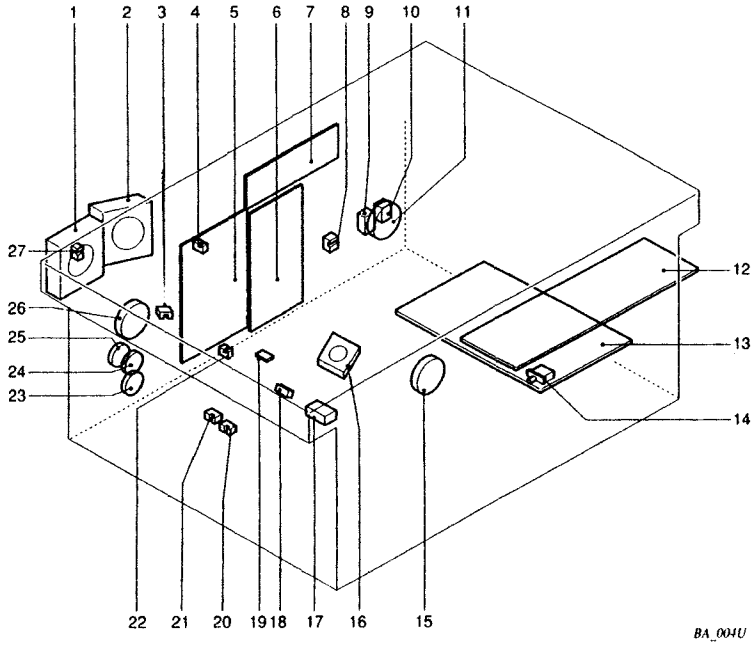


Figure 1-8-1

1. Fuser cooling fan
2. Optics cooling fan (A)
3. Blacking prevention film home position sensor
4. Half-speed unit home position sensor
5. High voltage power supply PCB
6. CPU PCB
7. Optics driver PCB
8. No.5/6 mirror unit home position sensor
9. Half-speed unit solenoid
10. Full-speed unit solenoid
11. Lamp unit scanner motor
12. Control panel PCB
13. Low voltage power supply PCB
14. Left cover switch
15. Toner supply/Blacking prevention film motor
16. Optics cooling fan (B)
17. Auto original density solenoid
18. Auto original density sensor
19. Toner density sensor (for Developer unit)
20. Timing roller sensor
21. Sheet bypass paper pass sensor
22. Paper exit sensor
23. Sheet bypass clutch
24. Paper feed roller clutch
25. Timing roller clutch
26. Main motor
27. Full-speed unit home position sensor

1.5 Copy Process

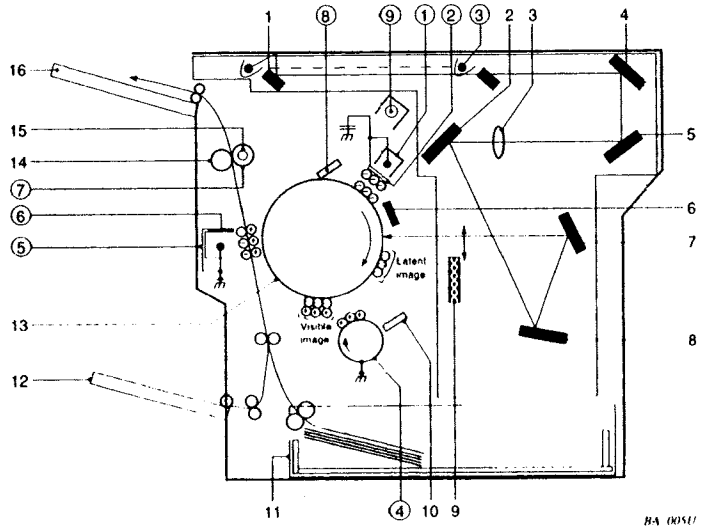


Figure 1-9-1

①	Charge corona	Approx. -4.6 kVDC	1	No.1 mirror	9	Auto original density sensor
②	Grid plate	Approx. -820 VDC	2	No.4 mirror	10	Doctor blade (BSD=0.65 mm)
③	Exposure lamp	—	3	Lens	11	Cassette
④	Magnetic roller (ø 20 mm)	Bias -250 VDC	4	No.2 mirror	12	Multi-sheet bypass
⑤	Transfer corona	Approx. -4.6 kVDC	5	No.3 mirror	13	Drum
⑥	Discharge saw	Approx. +2.9 kVDC	6	Blacking prevention film (for side erase)	14	Pressure roller
⑦	Heat roller	180°C	7	No.6 mirror	15	Fuser lamp
⑧	Cleaning blade	—	8	No.5 mirror	16	Paper exit tray
⑨	Discharge lamp	—				

Section II
Sub-Assemblies

2.1 Mechanical

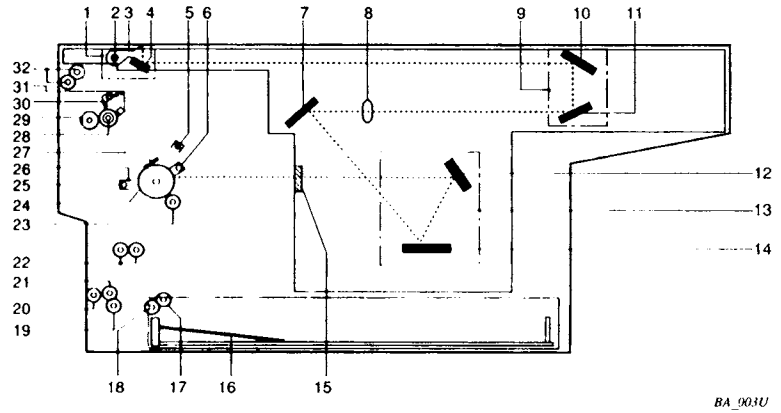


Figure 2-1-1

1. Full speed unit
2. Exposure lamp
3. Aperture plate
4. No.1 mirror
5. Discharge lamp
6. Charge corona
7. No.4 mirror
8. Lens
9. Half-speed unit
10. No.2 mirror
11. No.3 mirror
12. No.6 mirror
13. No.5/6 mirror unit
14. No.5 mirror
15. Dust protection glass
16. Bottom plate
17. Paper feed roller
18. Double feed prevention roller
19. Sheet bypass double feed prevention roller
20. Paper transfer roller
21. Sheet bypass paper feed roller
22. Timing roller
23. Magnet roller
24. Drum
25. Transfer corna
26. Discharge saw
27. Cleaning blade
28. Heat roller
29. Pressure roller
30. Separation finger
31. Heat roller cleaner
32. Paper exit roller

2.2 Paper feed unit and Multi-sheet bypass

1. Paper tray loading/unloading operation

1) As the paper tray is gradually inserted, a protrusion on its far side pushes against the paper lifting arm. As a result, the paper lifting arm gear turns in the arrow direction.
2) The paper lifting arm gear and lifting gear rotate as the paper lifting arm rotates. The lifting spring pressure causes the lifting lever to raise the paper tray bottom plate, bringing the paper in contact with the paper feed roller.
3) As the paper tray is removed, the paper lifting arm rotates in the direction of the arrow. This causes the paper lifting arm gear and lifting gear to rotate in the reverse direction. The lifting lever lowers, causing the paper tray bottom plate to lower.

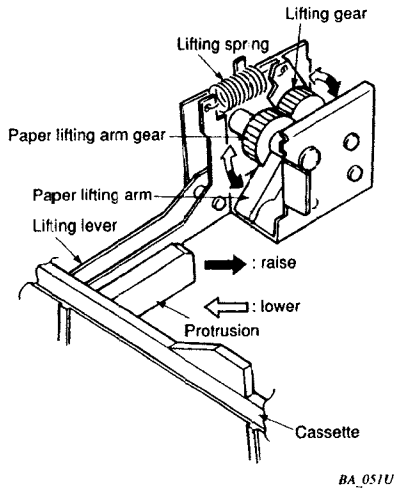


Figure 2-2-1

4) Normally, after the completion of a copy operation, a sheet of paper remains at the paper feed roller. If the paper tray is removed from the copier, the paper in the paper tray may be wrinkled or torn. The paper tray performs the following operation to prevent paper from remaining in the copier.
   - The double feed prevention roller (The roller mounted on the cassette) is lowered to separate it from the paper feed roller.
   - When removing the paper tray, the paper feed roller moves slightly, allowing the tray to be removed without wrinkling or tearing the paper.

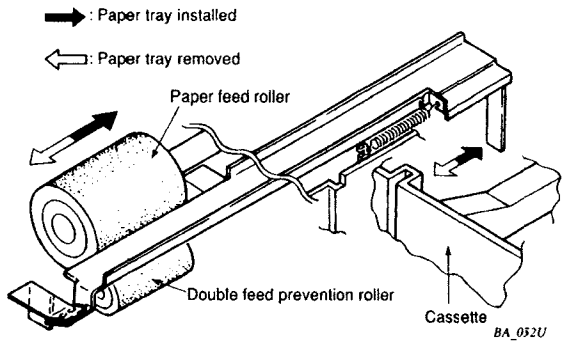


Figure 2-3-1

2. Paper feed sequence when the paper feed paper tray is selected.

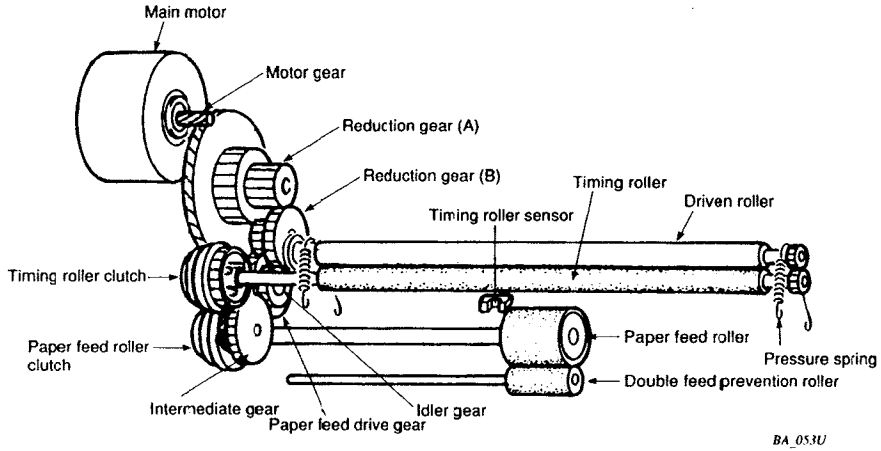


Figure 2-4-1

1) When the PRINT key is pressed, the rotation of main motor is transmitted to reduction gear (B) through reduction gear (A). The rotation of reduction gear (B) is then transmitted to a paper feed drive gear which drives the paper feed roller clutch gear.
2) The rotation of reduction gear (B) is then transmitted to a idler gear and intermediate gear which drives the timing roller clutch gear.
3) At the same time, the paper feed roller clutch turns ON, and the paper feed roller starts rotating, feeding the paper from the paper tray to the timing roller.
   Note: In the event of paper double feed, the double feed prevention roller (The roller mounted on the cassette) starts rotating in the clockwise direction to stop the lower sheet of paper from feeding. The feeding torque is determined by the torque limiter.
4) Near the timing roller is a timing roller sensor which checks the paper feed status. For a predetermined time, the paper feed roller clutch turns OFF and the paper remains in contact with the timing roller.
   - If the timing roller sensor does not detect the arrival of paper within a predetermined time, "P" (ADD PAPER) is displayed, and the copier stops.
5) Next, as the optical system starts executing its scan operation, the full-speed unit home position sensor detects the passing of the optical system; and after a predetermined time, the timing roller clutch rotates. Paper is then fed in the drum direction (the operating time of the timing roller clutch is determined separately for each paper size).
   - Paper is transported smoothly as a result of the pressure applied to the timing roller by the pressure springs located at both ends.

3. Multi-sheet bypass paper feed operation

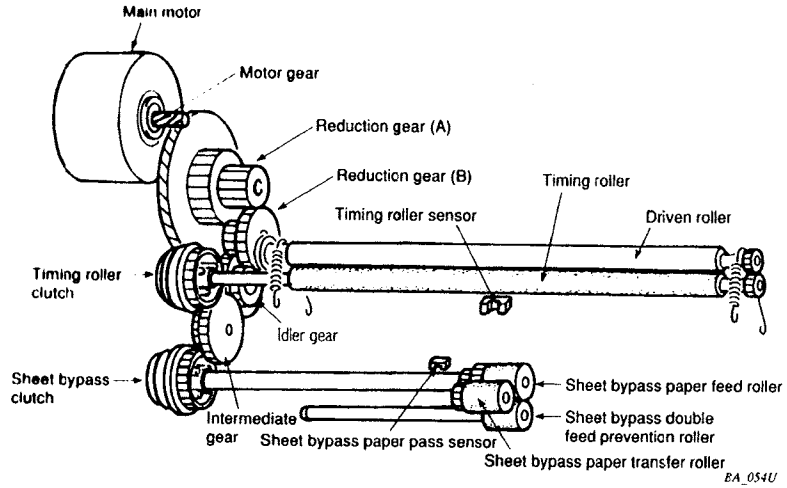


Figure 2-5-1

1) When the multi-sheet bypass is selected and the PRINT key is pressed, the main motor rotation is transmitted to timing roller clutch gear and sheet bypass clutch gear via reduction gear (B).
2) After a predetermined time, the sheet bypass clutch turns ON, the paper transfer roller is lowered to contact the paper by the torque limiter mounted on the sheet bypass paper transfer roller. At the same time, the paper stopper is released to allow paper to be fed from the bypass.

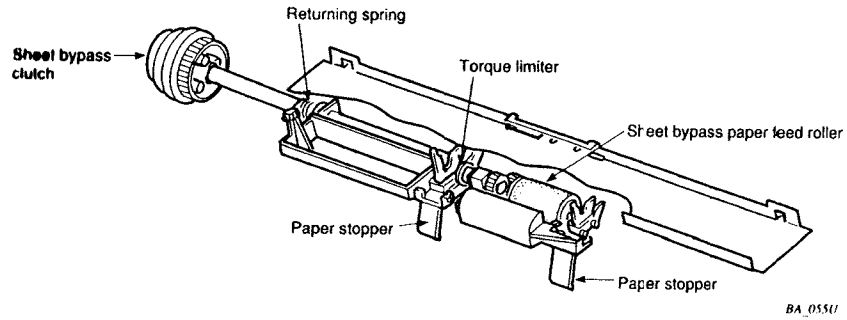


Figure 2-5-2

3) Next, the paper is fed by the paper transfer roller and the sheet bypass paper feed roller.
   Note: In the event of paper double feed, the sheet bypass double feed prevention roller starts rotating in the counter-clockwise direction to stop the lower sheet of paper from feeding. This feeding torque is determined by the torque limiter.
4) While on its way from the sheet bypass paper feed roller, the paper is detected by the sheet bypass paper pass sensor. After a predetermined time, the sheet bypass clutch turns OFF causing the sheet bypass paper feed roller and paper transfer roller to stop. At the same time, the paper transfer roller is returned to home position by returning spring
   - If the sheet bypass paper pass sensor does not detect the arrival of paper within a predetermined time, "P" (ADD PAPER) is displayed, and the copier stops.
   - If the sheet byass paper pass sensor detects the paper trail edge later, the timing roller sensor does not detect the arrival of paper within a predetermined time, PAPER JAM and WAIT are displayed, +24V is cut off, and the copier stops.

4. Paper feed unit removal

1) Removal of sheet bypass paper feed roller, sheet bypass double feed prevention roller and torque limiter
   a) Open the left cover.
   b) Curve the paper guide plate (A) and remove it.

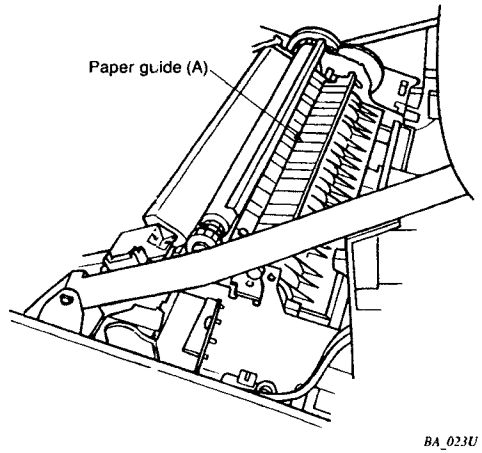


Figure 2-7-1

c) Remove the paper guide plate (B) (2 screws).

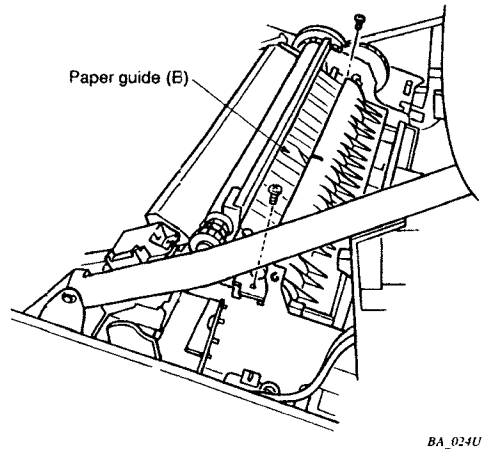


Figure 2-7-2

d) Remove the sheet bypass paper feed roller and double feed prevention roller (1 touch-ring each).
e) Remove the torque limiter from double feed prevention roller.

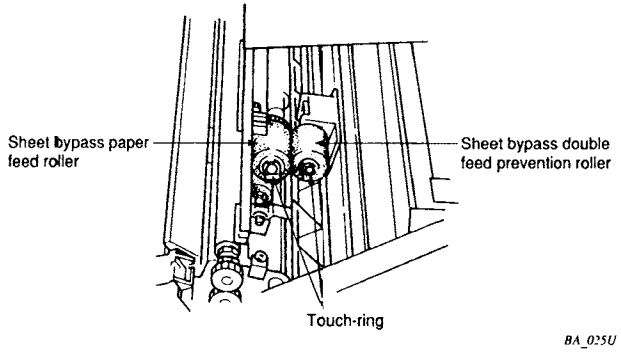


Figure 2-8-1

f) Reassemble in reverse order.
Note: One way bearing side of the sheet bypass paper feed roller goes to the rear.

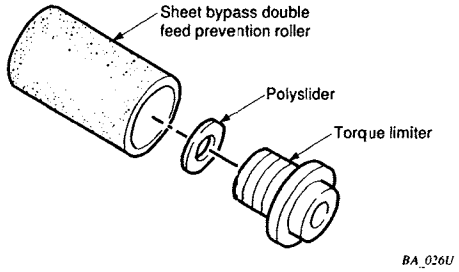


Figure 2-8-2

2) Removal of sheet bypass paper transfer roller
a) Remove the roller cover.
Note The roller cover is clipped onto the shaft as shown (X) in Figure 2-9-1. care must the taken not to bend the roller assembly when removing the roller cover.

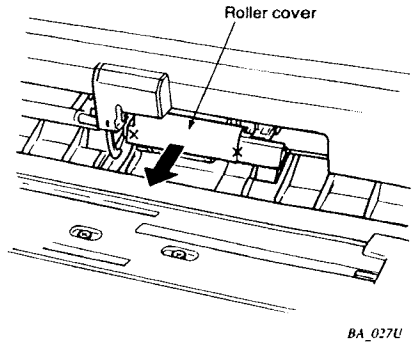


Figure 2-9-1

b) Remove the sheet bypass paper transfer roller.
c) Reassemble in the reverse order.

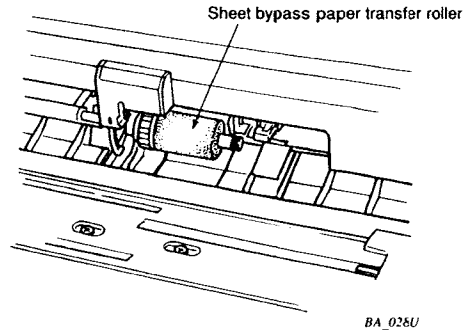


Figure 2-9-2

3) Removal of paper feed roller
   a) Open the left cover.
   b) Remove the developer unit (Refer to Developer unit removal).
   c) Lift up the paper tray and pull it out fully, raise the paper tray and pull towards you to remove it.
   d) Push the paper guide plate stoppers in the arrow direction and remove the paper guide plate.

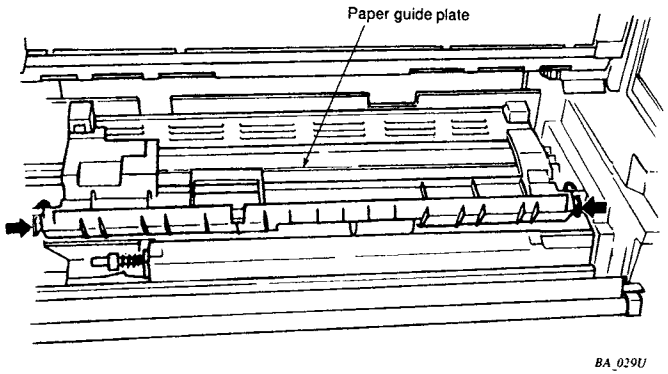


Figure 2-10-1

   e) Remove the roller stopper (1 screw).
   f) Remove the paper feed roller.
   g) Reassemble in the reverse order.
   Note: When the paper feed roller is installed, the one-way clutch on the paper feed roller is to the rear.

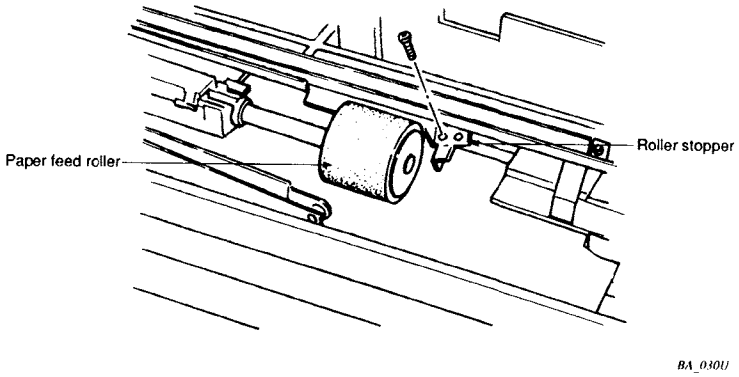


Figure 2-10-2

4) Removal of cassette double feed prevention roller
   a) Lift up the paper tray and pull it out fully, raise the paper tray and pull towards you to remove it.
   b) Remove the roller cover screws (2 screws) and push the hooks in the arrow direction then remove the roller cover..

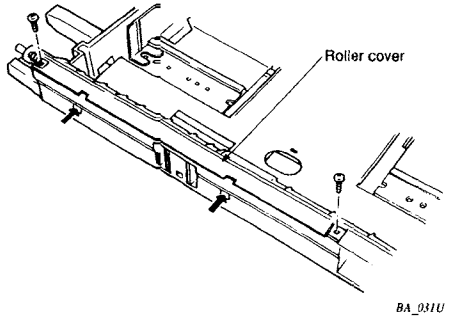


Figure 2-11-1

   c) Remove the double feed prevention roller (1 touch-ring).
   d) Remove the torque limiter from double feed prevention roller.

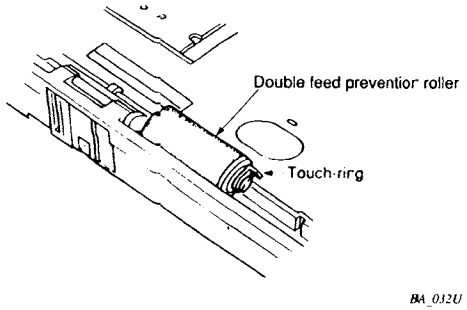


Figure 2-11-2

   e) Reassemble in the reverse order.

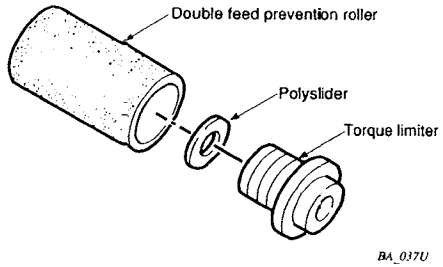


Figure 2-11-3

2.3 Developer unit

1. Developer unit operation

1) The developer (approx. 650 g) is kept inside the developer mixing section; 4% is powdered non-magnetic toner and the remainder consists of magnetic carrier particles.
2) The rotation force of the main motor is transmitted from reduction gear (A) to the developer drive gear, which rotates the magnet roller gear. The magnet roller gear, which is interlocked with the mixing gear and transport coil gear, performs the mixing operation of the developer and causes the toner and carrier particles within the developer unit to respectively assume a positive (+) and negative (-) friction charge.

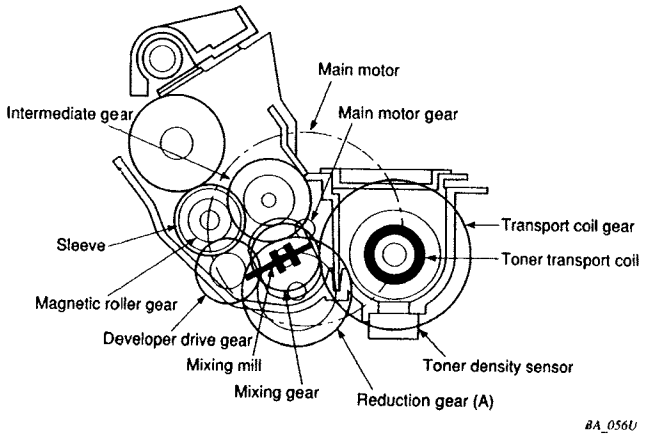


Figure 2-12-1

3) Rotation of the drum is driven by the rotation force of the main motor via drum drive gear.

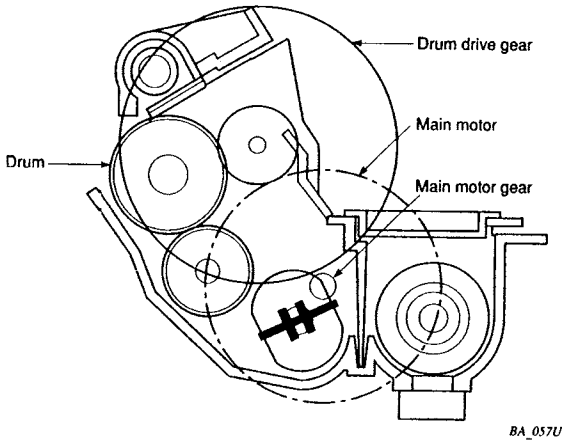


Figure 2-12-2

4) The sleeve, which is a rotating aluminum cylinder, rotates counterclockwise at 211.6 rpm. The magnet inside the sleeve causes the mixed developer to adhere to the sleeve's outer surface where it forms a magnetic brush. The sleeve moves in the counterclockwise direction. A doctor blade, mounted 0.65 mm from the sleeve, determines the height of the magnetic brush as the developer passes through the gap.
5) The drum on which the electrostatic latent image has been formed (negative charge pattern) is rotating in the clockwise direction, and contacts the magnetic brush of the sleeve.
The gap between the drum and sleeve is 0.85 mm.
The sleeve assumes the opposite polarity (positive), so the toner adheres to the electrostatic latent image. Meanwhile, a bias voltage of – 250VDC is being applied to the sleeve in order to regulate the amount of toner adhering control to the drum as well as the dispersal of toner.
The 0.85 mm gap between the drum and sleeve is regulated by a spacer ring with a diameter that is 1.70 mm larger than the sleeve diameter and contacts the edges of the drum.

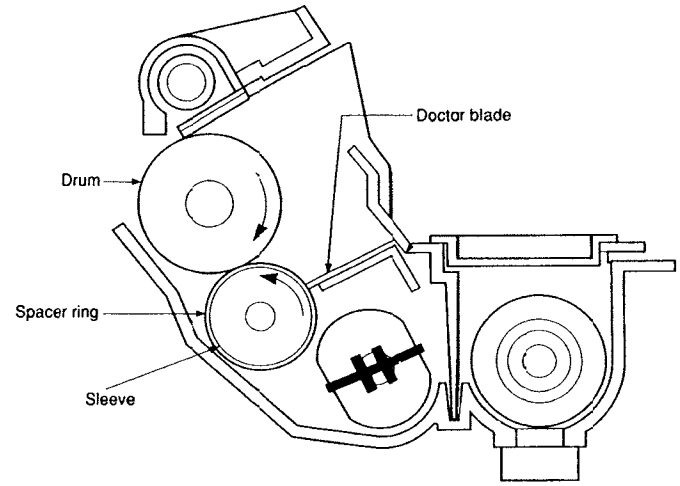


Figure 2-13-1

2. Toner density/level control

1) The toner density sensor mounted in the developer mixing section controls the toner density. The toner density sensor uses a inductance type sensor. When it detects the toner amount in the developer mixing section as being below the required level, a fixed amount of toner is supplied to the developer mixing section.
2) The developer is a mixture of a magnetic carrier and non magnetic toner. If the toner amount in the developer mixing section is above the required amount, the percentage of magnetic carrier is less, and the magnetic resistance decreases. Inversely, if the toner amount in the developer mixing section is below the predetermined amount, the percentage of magnetic carrier is greater, and the magnetic resistance increases. The toner supply is regulated by the detection of the changes in magnetic resistance.

   Note: When using magnetic materials, the magnetic resistance decreases as the cross-sectional area increases, or as the magnetic path shortens. The inductance type sensor has the same core as drive coil L1, detection coil L3, and standard coil L2. Therefore, when L1 is driven by a high frequency, the output voltages of L2 and L3 at the standard toner density level become equal. This allows detection coil L3's output to change, to correspond with the changes in toner density

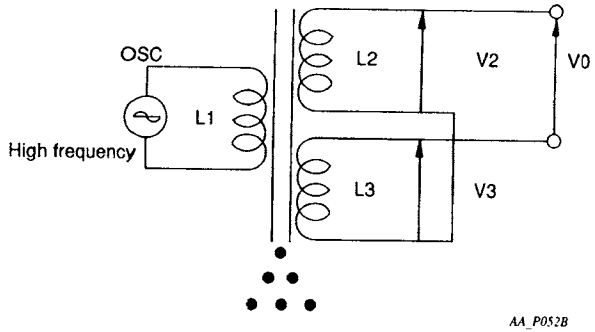


Figure 2-14-1

3) When the toner is consumed and the toner density decreases, the sensor output (VO) increases. When the sensor output exceeds the standard voltage (Vs), the toner supply/shutter motor rotates the toner bottle to supply toner to the developer mixing section.
   This maintains a uniform toner density.
4) Toner level indication is carried out with the toner density sensor detecting changes in toner density when the toner is supplied to the developer mixing section.When this density change is greater than the standard level, the presence of toner is determined. If it is less that the standard, the absence of toner is detected and the ADD TONER indicator lights.

3. Drum cleaning operation

1) After developing and transfer are completed, some toner is left on the drum surface. This remaining toner is scraped off by a cleaning blade. The cleaning blade remains in constant contact with the drum surface at a fixed pressure (due to the elasticity of the cleaning blade) and functions to clean the drum surface.
2) The remaining toner scraped off by the cleaning blade is fed into the cleaning frame and carried to the front of the developer unit by the rotation of the toner transport spiral, then stored in the waste toner bottle for disposal.

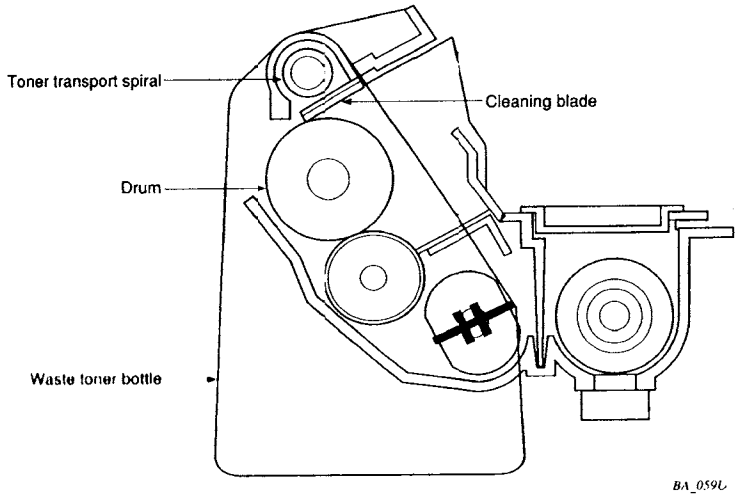


Figure 2-15-1

4. Developer unit removal

1) Replacement of drum, cleaning blade and developer

Caution: • After the developer is replaced, the automatic gain adjustment for the Toner Density Sensor (F8-09) (Refer to 5. Developer unit adjustment on page 2-20) and the Exposure Standard adjustment (F6-11) must be performed (Refer to 7. Optical unit adjustment on page 2-40).

• After drum is replaced, the Exposure Standard adjustment (F6-11) must be performed (Refer to 7. Optical unit adjustment on page 2-40).

a) Open the toner hopper cover.
b) Open the left cover.
c) Remove the waste toner bottle.
d) Disconnect the developer unit connector.
e) Remove the developer unit (2 screws).

Caution: • When handling the developer unit (removing/installing), pay close attention to the "CAUTUION" label on the drum protection cover.

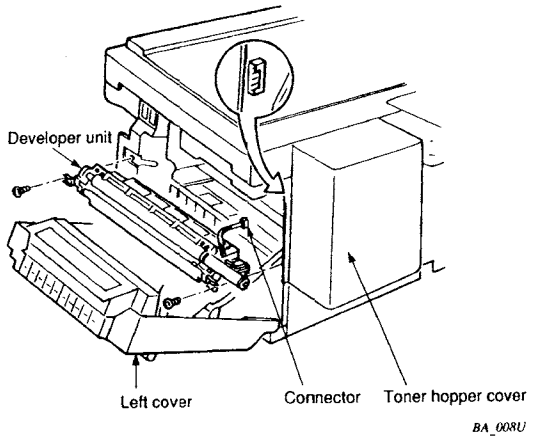


Figure 2-16-1

f) Remove the drum stoppers (front/rear) (2 screws each).
g) Remove the drum section (2 screws)

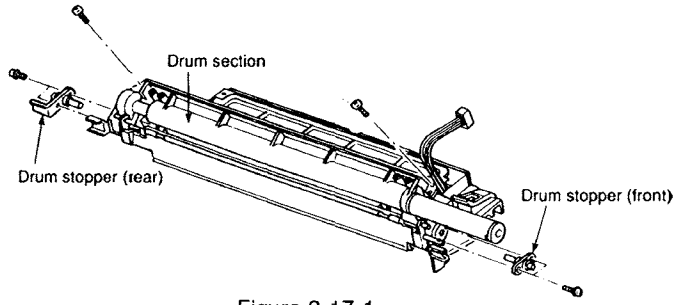


Figure 2-17-1

h) Remove the drum.

Note: The drum should always be handled with care, whenever a drum is installed or removed in a drum section.

Do not: • Touch the drum or mar the drum surface.
• Expose the drum to steam, saliva, or any other liquid.
• Expose the drum to high heat conditions
• Expose to direct sunlight. Always cover the drum when removed from the copier with a clean sheet of paper.
• Expose to areas with high chemical fume concentration.

i) Remove the drum cleaning blade (2 screws).

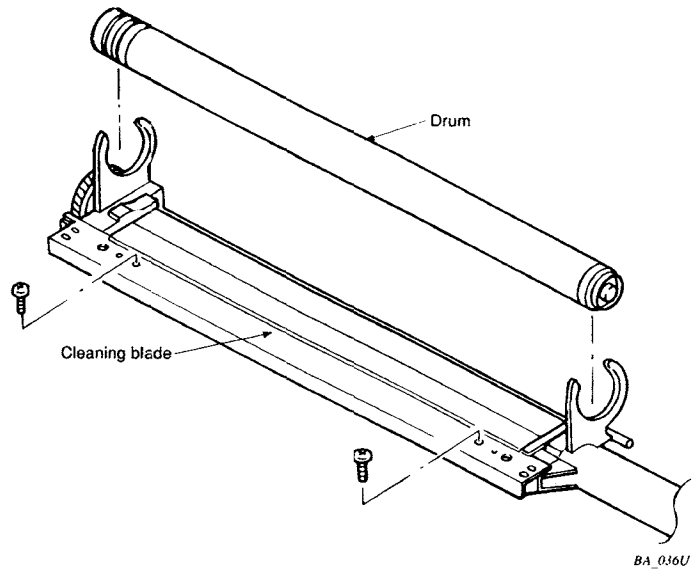


Figure 2-17-2

Sub-Assemblies

j) Remove the developer unit lid.

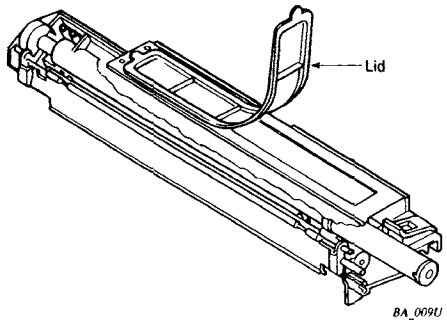


Figure 2-18-1

k) Tilt the developer unit over a newspaper or a suitable container. The majority of the developer should fall out. Some developer will remain on and under the magnetic roller.
l) Take a new bottle of developer and shake it approximately 10 to 15 times.
m) Pour the entire bottle of developer into the unit evenly.
n) Reassemble in the reverse order.

2) Removal of charge corona
   a) Remove the developer unit (Refer to Developer unit removal on page 2-16).
   b) Remove the charge corona cover (1 screw) and remove the charge corona.

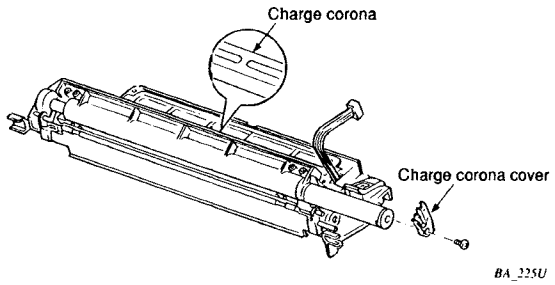


Figure 2-18-2

3) Drum cleaning
   Drum cleaning should be done only when absolutely necessary. Do not use alcohol and organic matter
   Note: • Partial cleaning of the drum should be avoided.
   • Even if the blot on the drum surface is partial, the whole surface must be cleaned.
   • Cleaning the drum could reduce the normal life of the drum. Only clean when absolutely necessary.
   a) Remove the drum as described in step 1, a to h.
   b) With a soft pad wipe off lightly any foreign substance on the drum surface such as toner and dust.
   c) Clean the drum flanges with a soft pad.
   d) Reassemble in the reverse order.

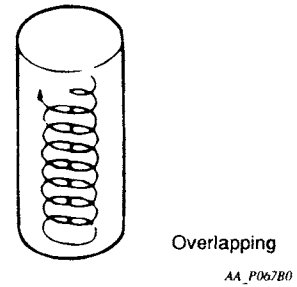


Figure 2-19-1

5. Developer unit adjustment

1) Automatic gain adjustment of toner density sensor
   - After the developer and toner density sensor is replaced, this adjustment must be performed.
   - When the power switch turns ON and the ADD TONER indicator flashes, toner is supplied automatically during initialization operation, then toner density change is greater than the standard level.

a) Remove the developer unit.
b) Press the PAPER TRAY, ZOOM DOWN and 1 DIGIT keys to enter the F mode.
c) Re-install the developer unit.
d) Set the F8-09.
e) Press PRINT key for automatic TDC sensor gain adjustment. (Wait approximately 2 minutes until the adjustment cycle stops.)
f) Write the contents of F6-21 and 26 to the memory sheet.
g) Press the PAPER TRAY, ZOOM DOWN and CLEAR/STOP keys to escape from the F mode.

2.4 Hopper unit

1. Toner supply operation

The hopper unit stores the toner that is supplied to the developer mixing section. A microprocessor controls the amount of toner that the hopper releases into the mixing section.

1) When the toner density sensor detects that the toner level is too low, the microprocessor outputs a signal to rotate the toner supply/blacking prevention film motor, causing the motor to rotate.
2) The rotational force of the toner supply/shutter motor is transmitted via drive gears to rotate the toner transport spiral, so toner can be supplied to the developer mixing section. The agitation and mixing shaft rotates together with the toner transport spiral and supplies toner to the toner transport spiral.

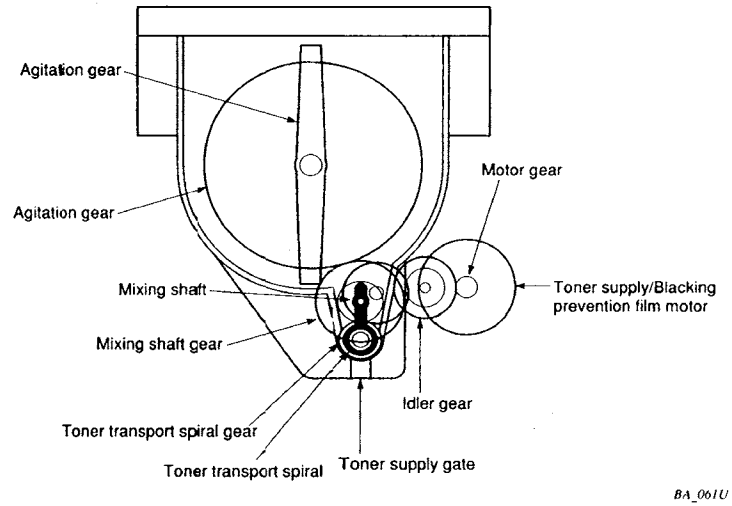


Figure 2-21-1

2. Toner transport pipe shutter operation

This mechanism functions to close and open the opening in the toner transport pipe of toner hopper unit as the developer unit is removed from, and installed into, the copier.

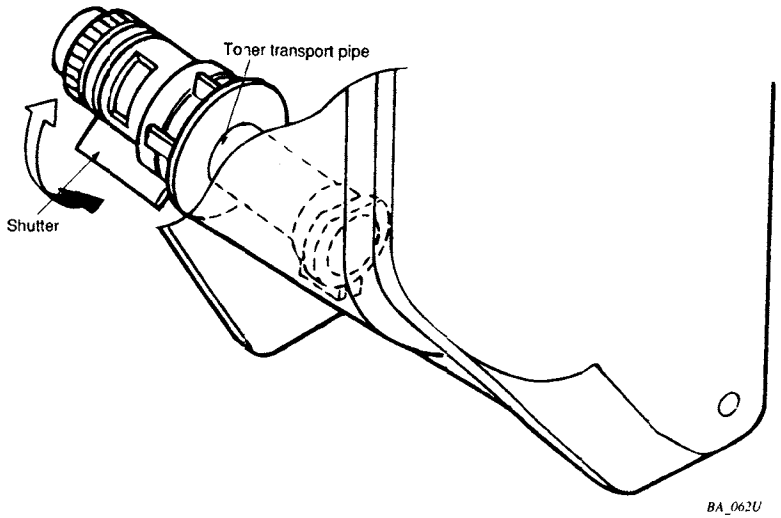


Figure 2-22-1

2.5 Fuser unit

1. Fuser operation

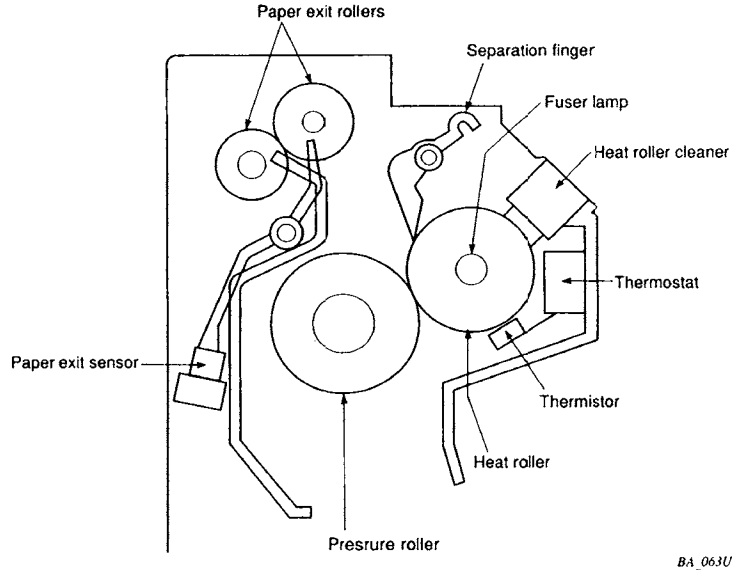


Figure 2-23-1

1) When the power switch is turned ON, the fuser lamp lights and the heat roller starts to warm up.
2) In the center of the teflon coated heat roller is a fuser lamp (halogen lamp) that serves as the heat source. The surface temperature of the heat roller is held at approximately 180°C. The temperature is monitored by a thermistor that contacts the heat roller surface. The CPU control circuit switches the fuser lamp ON/OFF in order to maintain a constant temperature for the heat roller.
3) A thermostat is mounted next to the heat roller as a safety precaution against abnormal temperature increases of the heat roller. The thermostat turns off the fuser lamp if the heat roller temperature reaches an abnormal temperature.
4) The pressure roller is silicon rubber and applies a uniform pressure of approximately 0.5 kg/cm against the heat roller. This pressure can be adjusted by the pressure spring.
5) When the temperature in the heat roller reaches approximately 160°C, the main motor turns ON and rotates the heat roller, pressure roller and the paper exit rollers. At this time, developer unit initialization starts.
6) Separation fingers are pressed against the heat roller to prevent the copy paper from sticking to the roller.

7) To prevent the heat roller from becoming dirty during copy operations, it is constantly cleaned by a heat roller cleaner.
8) During the final copy operation, the paper exit sensor is turned ON when detecting the paper exiting, and within a predetermined time, the main motor turns OFF. The heat roller, pressure roller and paper exit rollers stop.

Note:
- If the heat roller does not reach the proper operating temperature within a predetermined time after the fuser lamp is lit, "E4" and "01" will appear in the display.
- During the copy operation, the fuser lamp is turned ON. If the heat roller temperature is approximately 150°C or less, WAIT is displayed on the control panel and the copy operation will stop after ejecting the paper. (Copy operation is available by pressing the PRINT key again after the WAIT indication goes off.)
- When "E4" and "01" are displayed, "E4" and "01" can be cleared by opening/closing the left cover switch OFF/ON after the repair is completed.
- When the thermistor is short-circuited or open, "E4" and "01" are displayed.

2. Fuser unit removal

1) Removal of pressure roller, fuser lamp and heat roller
   a) Open the left cover.
   b) Remove the heat roller cleaner.
   c) Remove the fuser cover (2 screws).

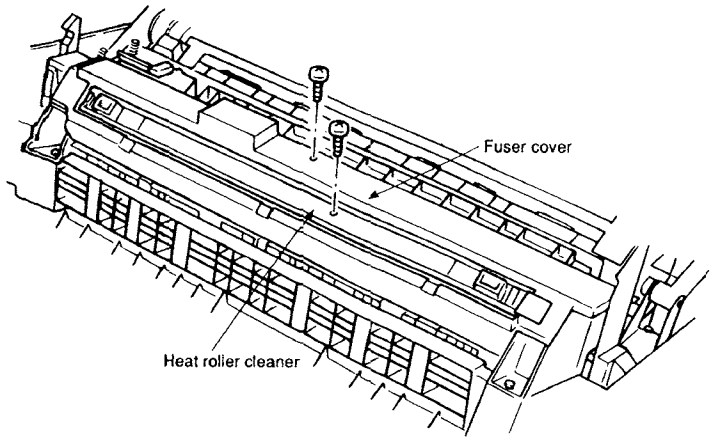


Figure 2-25-1

   d) Remove the fuser lead wire (2 screws).
   e) Disconnect the thermistor connector.
   f) Remove the heat roller section (6 screws).

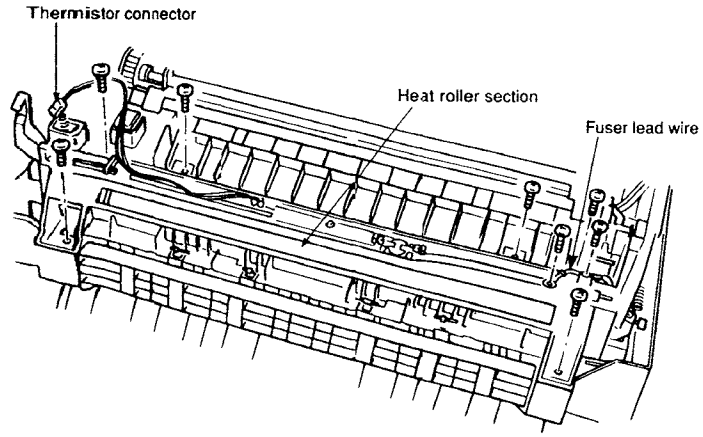


Figure 2-25-2

g) Remove the pressure roller.

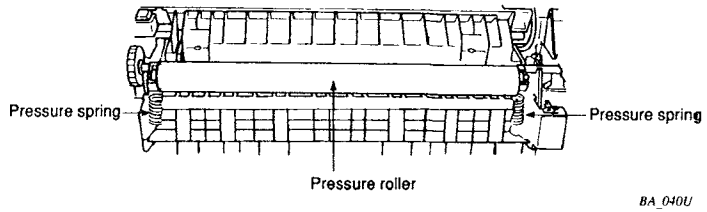


Figure 2-26-1

h) Remove the bearings from pressure roller.

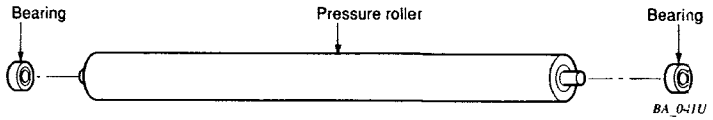


Figure 2-26-2

i) Remove the lamp holder (rear) (1 screw).
j) Remove the fuser lamp.

Note
- Do not touch the glass portion of the lamp.
- When the lamp is installed, the rated voltage mark must be towards the rear.
- When installing the lamp, make sure it contacts the rear fuser lamp terminal.

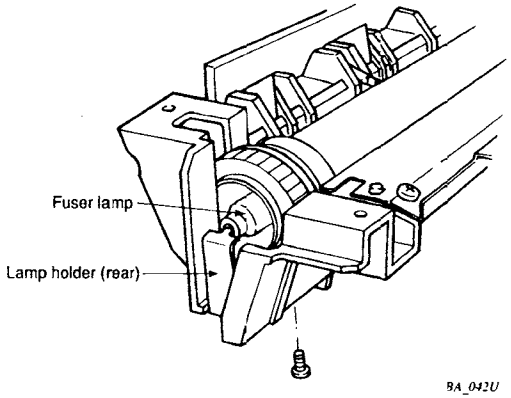


Figure 2-26-3

k) Remove the separation fingers (4 pieces).

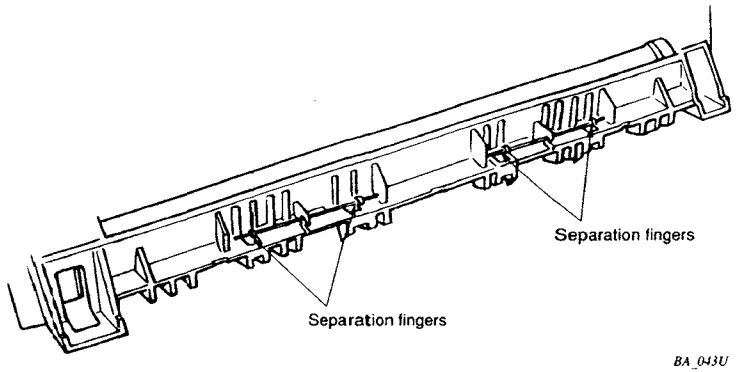


Figure 2-27-1

l) Remove the heat roller section mounting bracket with ground plate. (2 screws).
m) Remove the heat roller assembly.

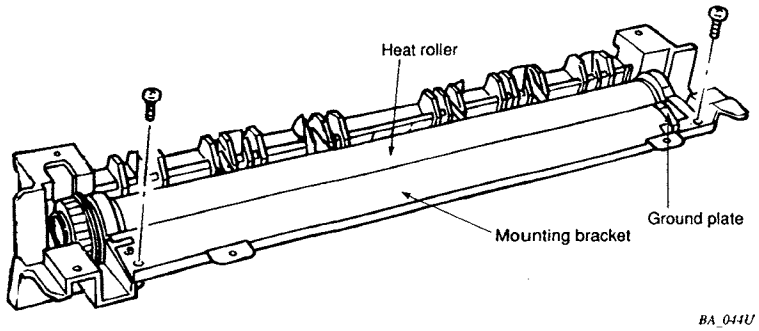


Figure 2-27-2

n) Remove the fuser drive gear and bushings.
o) Reassemble in the reverse order.

Note: When installing the pressure roller, make sure pressure roller spring is installed to the roller mounting bracket.

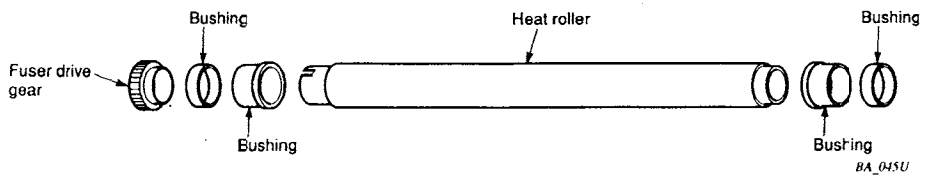


Figure 2-27-3

2.6 Optical unit

1. Optical system operation

As Figure 2-28-1 shows, there is a full-speed unit home position sensor on the left side of the copier. The sensor plate on the full-speed unit controls the optical system by switching the full-speed unit home position sensor ON/OFF.

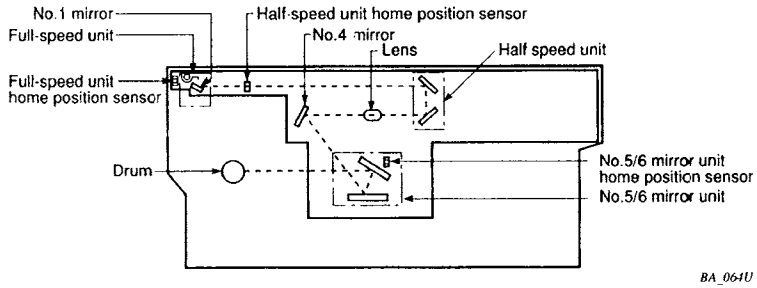


Figure 2-28-1

When the power is turned ON, the lamp unit scanner motor starts to turn and move the full-speed unit, half-speed unit and No.5/6 mirror, whether or not the full-speed unit home position sensor detects the sensor plate.

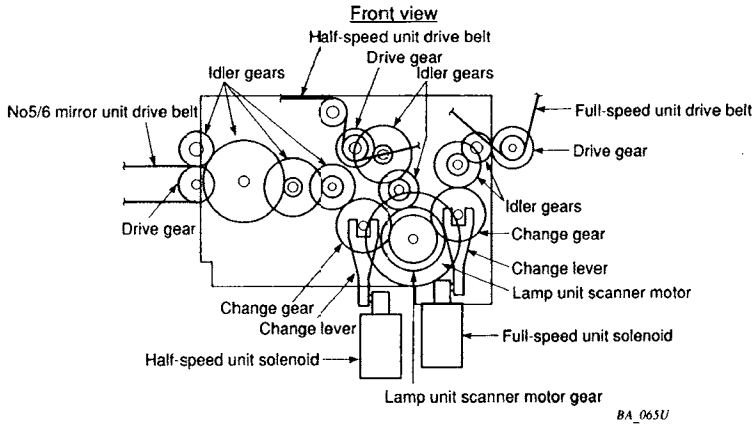


Figure 2-28-2

Unit operation (Solenoid Signal)

	Scan	Half-speed unit copy ratio	No.5/6 mirror unit copy ratio
Half-speed unit solenoid	OFF	ON	ON
Full-speed unit solenoid	OFF	OFF	ON

2. Auto original density control operation (Pre-scan)

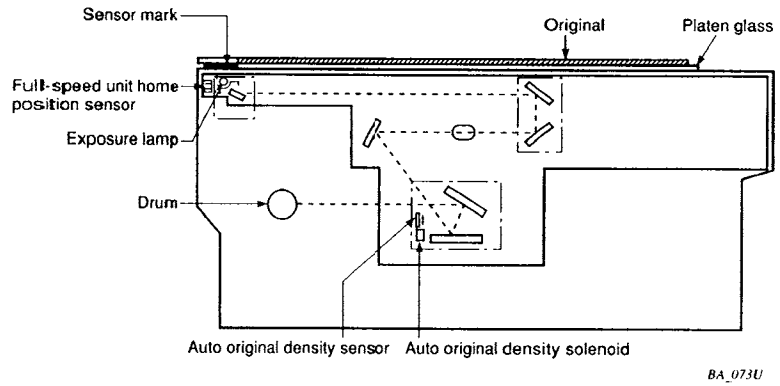


Figure 2-29-1

1) When the PRINT key is pressed, the fuser cooling fan turns at full speed, the main motor turns.
2) After a predetermined time, the exposure lamp lights, and the auto original density solenoid comes on to move the auto original density sensor to the center of the optical axis. At the same time,the lamp unit scanner motor turns forward and the full-speed unit and half-speed unit start. They move approximately 5.9" (15cm) in the direction of the end position, then return.
3) During this return, the original density value read in the auto original density sensor is output to the CPU PCB. The CPU calculates the difference between this density and the density of the standard density mark and sets the exposure lamp voltage to match the density of the original.
4) When the optics home position sensor detects the full-speed unit, the lamp unit scanner motor stops, the auto original density sensor also moves to its home position, and the copy operation starts with the density level determined by the auto original density sensor operation.
5) When the full-speed unit movement turns off the optics home position sensor, the registration timing starts. When the predetermined time has passed, the timing roller clutch comes on to feed the copy paper.
6) After the operating time specified for the size of paper being used lapses, the lamp unit scanner motor rotates in reverse, the exposure lamp goes off, and the full-speed unit moves in the direction of the optics home position sensor.
7) The lamp unit scanner motor is a stepping motor. It is controlled by the pulses output from the CPU PCB.

3. Constant light volume measurement operation

1) When the fuser lamp is on more than 20 seconds, the exposure lamp lights the standard density mark and at the same time the auto original density solenoid turns on to move the auto original density sensor to the center of the optical axis. This operation raises the exposure lamp voltage until the auto density sensor output reaches the level set when the constant light volume was adjusted.
2) When the auto original density sensor output reaches this level, the exposure lamp goes out. The auto original density sensor output just before the lamp goes out is stored into the non-volatile memory, and the exposure lamp voltage becomes the standard for copying. (F6-15 and F6-16)
3) The constant light volume measurement operation can be turned off using F5-24.

4. Reduction and Enlargement mechanism

The optical unit is composed of a through-lens, mirrors and exposure lamp. It uses a mirror movement system and a slit-exposure system. Reduction and enlargement are performed by the following four methods:

1) Magnification change ratio (Half-speed unit and No.5/6 mirror unit movement system)
2) Variation of optical system scan speed.
3) Exposure lamp voltage change.
4) Blacking prevention film change

1) Magnification change ratio (Half-speed unit and No.5/6 mirror unit movement system)

When in the Reduction/Enlargement mode, with the 1:1 position as a standard, the distance from the original to the lens is changed by moving the half-speed unit. The distance from the lens to the drum is also changed by moving the No.5/6 mirror.

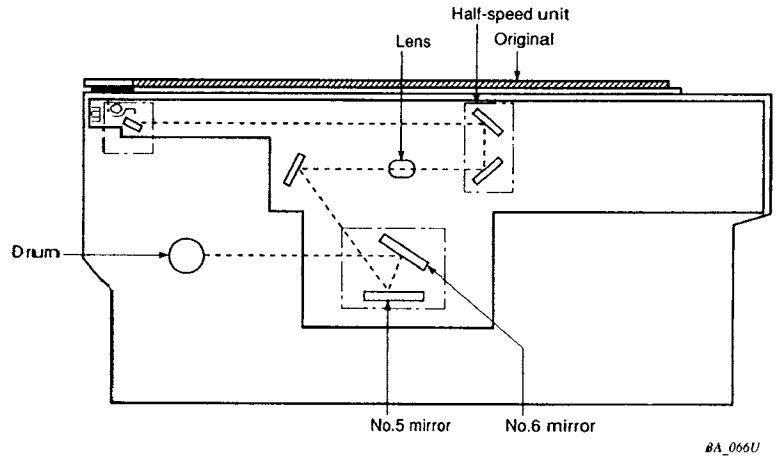


Figure 2-31-1

(Half-speed unit movement operation)

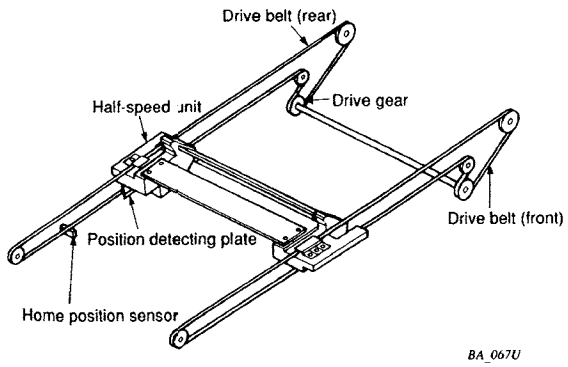


Figure 2-32-1

1) When the microprocessor outputs a rotation pulse that conforms to the copy ratio (0.2 mm of movement per pulse), the lamp unit scanner motor begins rotating. This rotation force is transmitted to the idler gear and half-speed unit drive gear to move the half-speed unit to the desired position by the half-speed unit drive belt.
2) The stopping position of the half-speed unit that conforms to the copy ratio is detected by the half-speed unit position detecting plate and half-speed unit home position sensor, which are mounted on the half-speed unit.

(No.5/6 mirror unit movement operation)

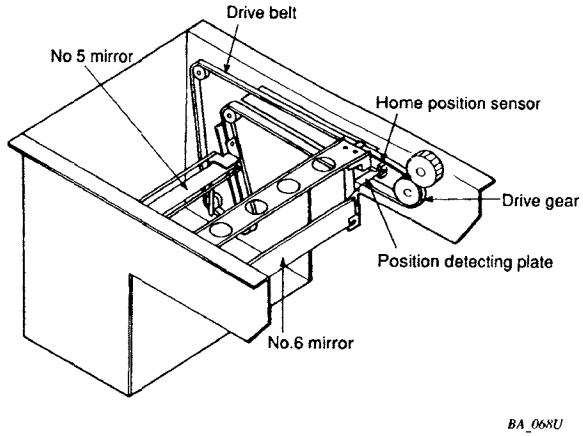


Figure 2-33-1

1) When the microprocessor outputs a rotation pulse that conforms to the copy ratio (0.13 mm of movement per pulse), the lamp unit scanner motor begins rotating. This rotation force is transmitted to the idler gear and mirror drive gear to move the No.5/6 mirror to the desired position by the No.5/6 mirror unit drive belt.
2) The stopping position of the No.5/6 mirror that conforms to the copy ratio is detected by the No.5/6 mirror position detecting plate and No.5/6 mirror unit home position sensor, which are mounted on the No.6 mirror holder (rear).

2) Variation of optical system scan speed

The optical system scan speed is changed (between full-speed unit and half-speed unit) according to the copy ratio. This speed change is performed by dividing the frequency of the crystal oscillator on the CPU PCB.

a) The width direction of the original image that is sent by the mirror and lens is irradiated on drum surface without relationship to the slit as in the figure.

b) When making a reduction, the drum image a+b+c is the irradiated figure of the reduced original image A+B+C. While the drum image distance is being changed, the speed is increased so that the original image A+B+C exposure can be sent.

c) The scan speed will only alter the size of the image from lead to trail edge. The scan speed is increased for reduction and decreased for enlargement.

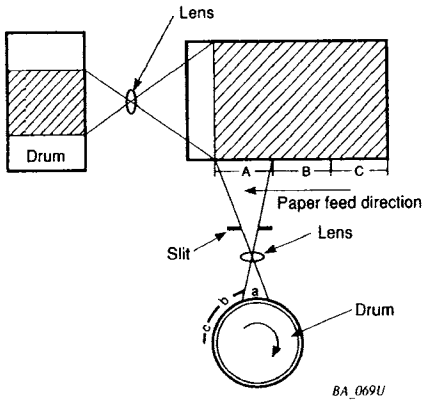


Figure 2-34-1

3) Exposure lamp voltage change

- The amount of light on the drum decreases for enlargement copying, so the exposure is increased to compensate.
- The amount of light on the drum increases for reduction copying, so the exposure is decreased to compensate.

4) Blacking prevention film change

- In reduction, the sections of the drum, not exposed by the lamp retain a charge, forming toner build up on both edges of the drum. The result is wasted toner and dirty copies.
- The charge left on the drum after transfer is removed by fully exposing the drum surface to the discharge lamp and blacking prevention film, which is also used for reduction blacking prevention.
- The blacking prevention film position changes according to the reduction ratio selected.
- The blacking prevention film movement operation is accomplished by the of toner supply/blacking prevention film motor.

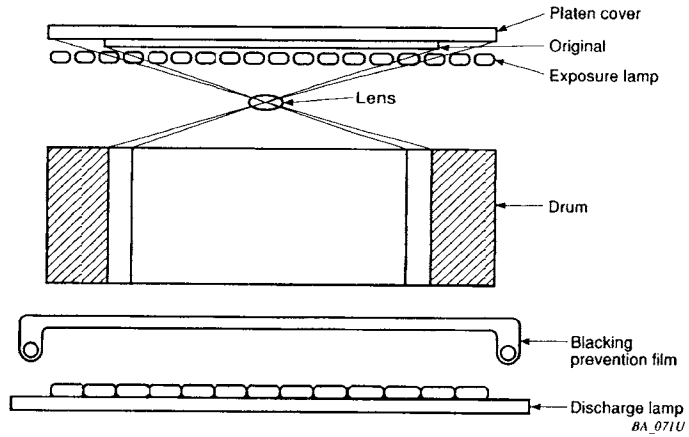


Figure 2-35-1

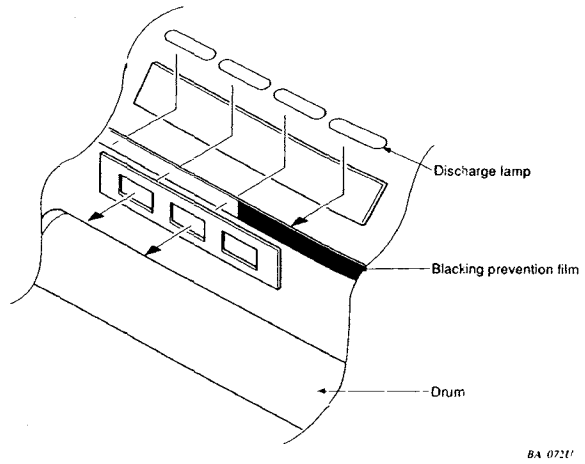


Figure 2-35-2

Sub-Assemblies

5. Other operations

- A thermostat is incorporated in the optical system to prevent over temperature caused by the exposure lamp.
- In PHOTO Mode, the amount of exposure is automatically decreased. In PHOTO Mode and DOCUMENT Mode the amount of exposure can be changed with the copy density select keys.

6. Optical unit removal

1) Removal of exposure lamp

Caution: After the exposure lamp is replaced, the Exposure Standard adjustment must be performed. (Refer to 7. Optical unit adjustment on page 2-40).

a) Turn the power off and unplug the copier
b) Remove the glass holder (left) (3 screws) and remove the platen glass.
c) Align the full-speed unit with the opening in upper frame for easy access to the exposure lamp terminal screw.

Note: Full-speed unit can only be moved by rotating drive shaft (located on right side). A glip is provided on the shaft.

d) Remove the reflector plate (upper) (2 screws).
e) Remove front exposure lamp terminal (front) (1 screw).
f) Remove the exposure lamp.
g) Reassemble in the reverse order.

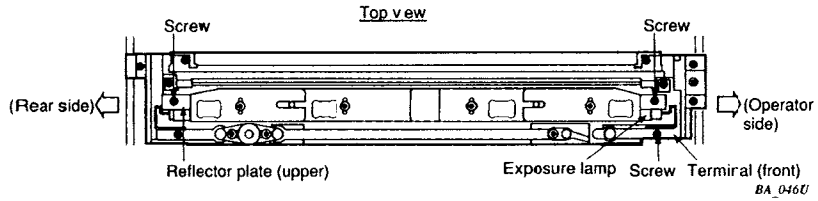


Figure 2-37-1

7. Optical unit adjustment

1) Copy density difference adjustmentThis adjustment should only be performed when absolutely necessary. Perform this adjustment when there is a copy density difference. Before adjustment, confirm that there is no dirt or condensation on the lens or mirrors.
   a) Select the F8-C00 mode.
   b) Press the PRINT key, the full-speed unit will move to the right.
   c) Turn the power off and unplug the copier.
   d) Remove the glass holder (left) (3 screws) and remove the platen glass.
   e) Loosen the aperture plate mounting screws (4 screws).
   f) Adjust the aperture plate.
      Note: If the copy density is light, make the aperture opening narrower. If the copy density is dark, widen the aperture.

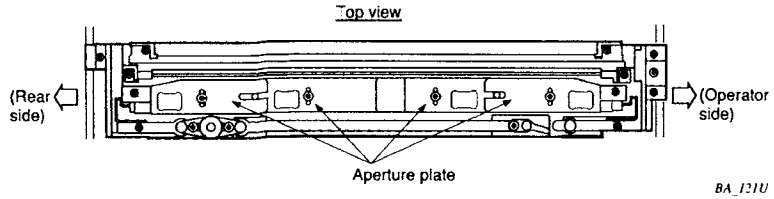


Figure 2-38-1

2) Optical skew adjustment
   This adjustment should only be peformed when absolutely necessary. Perform this adjustment when there is copy skew. This adjustment should be previously checked at installation.
   a) Remove the platen glass.
   b) Loosen the belt clamp (front) mounting screws (2 screws).
   c) Turn adjustment screw as shown in figure below.
      Note If it is required to adjust the skew again, move the belt clamp (front) in small movements very carefully and check for skew.

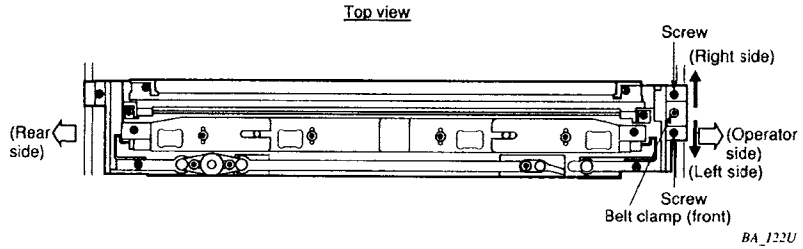


Figure 2-39-1

- From the operator side of copier, move the belt clamp (front) to the right side.

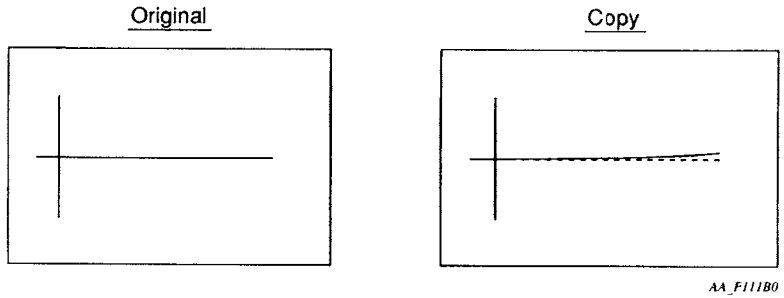


Figure 2-39-2

- From the operator side of copier, move the belt clamp (front) to the left side.

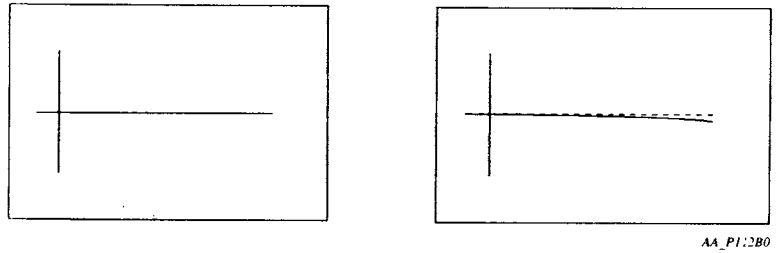


Figure 2-39-3

3) Exposure standard adjustment
- After the durm, exposure lamp and auto original density sensor is replaced, this adjustment must be performed.

a) Enter the F6 mode.
b) Comfirm F6-C61 is 0, and change if necessary. (If drum is replaced)
c) Enter the F2 mode and set the exposure to the center position in the DOCUMENT mode.
d) Make a copy of Test Chart #53 (Ledger size) or #54 (A3 size) with Gray Scale (P/N: FQ-SJ101).

- Gray Scale 1 should not be visible.
- Gray Scale 2 should be clearly visible.

e) F6-11 adjustment.
Note: If the density light, (-) direction = density darker.
If the density dark, (+) direction = density lighter.

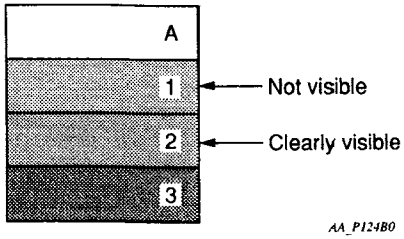


Figure 2-40-1

f) Repeat steps c to e until the proper density is attained.

4) Full-speed unit and half-speed unit position adjustment
When the full-speed unit and half-speed unit are moved by hand, position slippage may occur, then this adjustment must be performed.

(Full-speed unit)
a) Release the full-speed unit shaft stoppers (front/rear), then lift up the shaft.
b) Manually move the full-speed unit to the paper exit side fully.
c) Lock the full-speed unit shaft stoppers while firmly holding the full-speed unit against the exit side frame.

(Half-speed unit)
a) Loosen the belt clamps (front/rear) mounting screws (1 screw each).
b) Manually move the half-speed unit so that the half-speed unit contacts the rail stoppers (front/rear).
c) Tighten the belt clamp (front/rear) mounting screws.

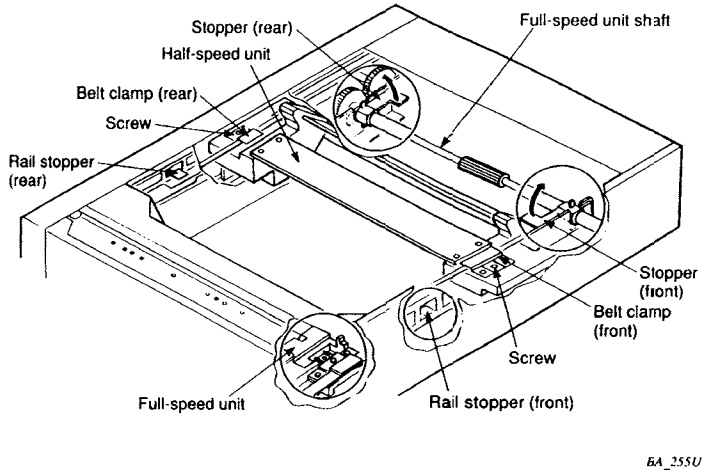


Figure 2-41-1

Sub-Assemblies

2.7 Miscellaneous removal

1) Removal of ozone filter
   a) Open the left cover.
   b) Push the hook in the arrow direction and remove the ozone filter assembly.

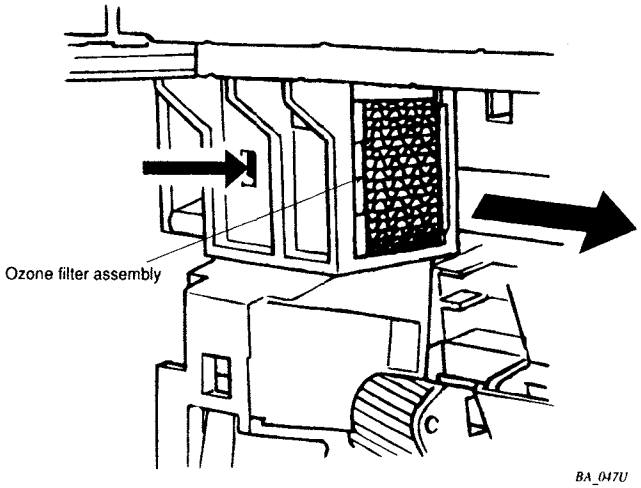


Figure 2-42-1

   c) Remove the ozone filter.
   d) Reassemble in the reverse order.

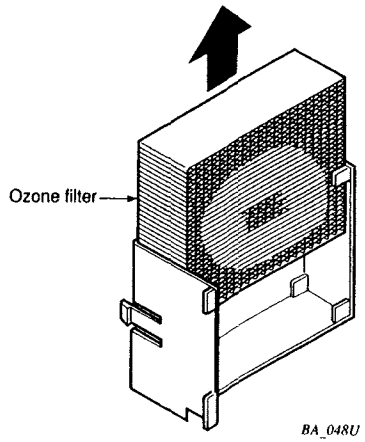


Figure 2-42-2

2) Replacement of corona wire
   When the corona wire is external dirty, loose, damaged, or broken, replacement is necessary.
   (Charge corona)
   a) Remove the grid plate.
   b) Remove the rear cover.
   c) Remove the old wire.
   d) Hook the wire ring to the rear hook spring plate.
   e) Hook the wire ring to the front hook pin.
   f) Reaasemble in the reverse order.
   (Transfer corona)

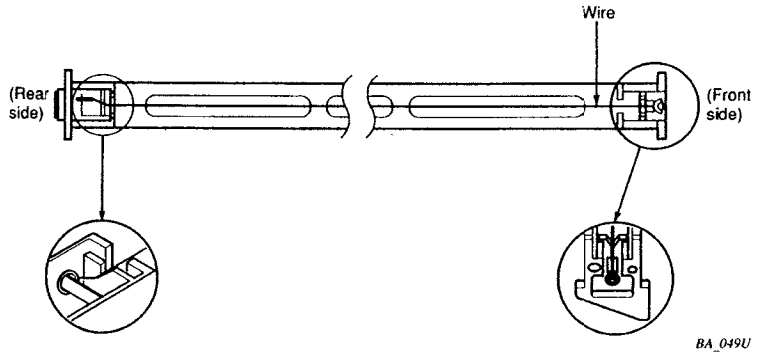


Figure 2-43-1

   a) Remove the ground plate, paper separation guide and pre-transfer roller assembly (2 screws).
   b) Remove the old wire.
   c) Hook the wire ring to the front hook pin.
   d) Hook the end of the wire ring to the tension spring.
   e) Reassemble in reverse order.

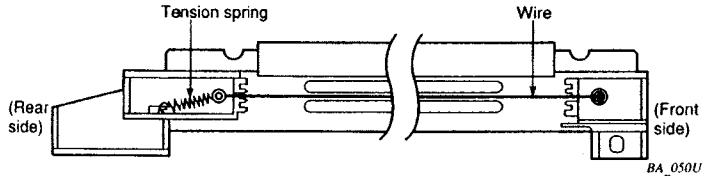


Figure 2-43-2

3) Removal of low voltage power supply PCB
When the low voltage power supply PCB is installed, the power cord connectors are to be inserted as shown in Figure 2-44-1.
a) Remove the right cover (2 screws).
b) Remove the ground plate (3 screws).
c) Disconnect all connectors.
d) Remove the low voltage power supply PCB assembly (3 screws).

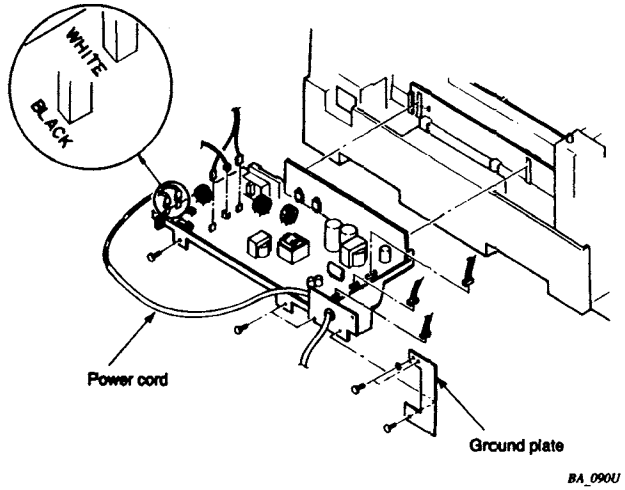


Figure 2-44-1

e) Remove the low voltage power supply PCB from mounting bracket (10 screws).
f) Reassemble in the reverse order.

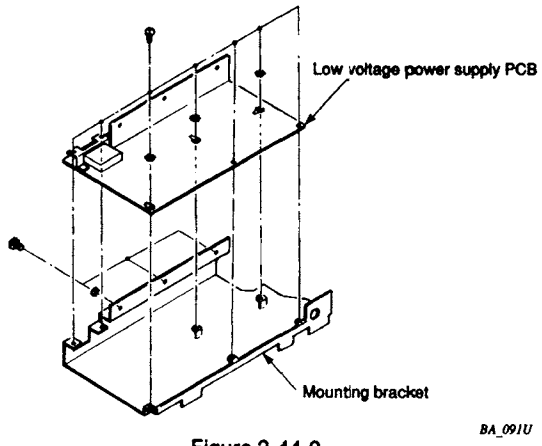


Figure 2-44-2

Section III
Preventive Maintenance

3.1 General

1. A preventive maintenance inspection of the copier should be performed every 30,000 copies. If the preventive maintenance inspection is correctly performed, high quality copies can be maintained for a long period of time, machine down time can be reduced, and the number of service calls minimized.
2. Refer to the attached chart for the schedule of replacements at 30,000 copy PM.
3. A high voltage hazard remains even when the machine is not operating. Always disconnect the machine from its power source (wall outlet) before servicing or disassembly.

3.2 Recommended tools

1. The following items are necessary to perform an effective, time efficient PM.
   a) Vacuum cleaner
   b) Blower brush
   c) Isopropyl alcohol
   d) Cleaning cotton
   e) Lint free wiper (Kim wipes)
   f) Cotton swabs
   g) Glass cleaner

3.3 Cleaning recommendations

1. It is generally recommended that during the course of each PM (or each visited time), the developer unit be removed for easy access to the general interior of the copier. Vacuuming of the copier is the first step.
2. Refer to the appropriate PM cycle on the maintenance chart (page 4-2), where the replacement and cleaning cycles are broken down by sub-assembly.
   Note: Use of IPA is strongly suggested, but it is only to be used when dry cleaning is ineffective. Excessive use of IPA can decrease the operating life of rubber components.
3. IPA should be used to clean the feed roller, timing roller, thermistor, corona, transport roller, and fuser pressure roller (only when required).
4. Cleaning with a blower brush is recommended for the corona units, optics, and general purpose.
5. Before servicing the developer unit, it is advisable to remove the drum and place in a dark safe place, away from typical drum hazards (Ex. Physical damage, direct intense light, chemical vapors, etc.).
6. Exercise caution in handling and cleaning the drum cleaning blade. Physical damage and finger marks will affect copy quality.

7. For individual removals, replacement, and adjustments refer to respective sub-assemblies information in section III.

Caution: It is recommended that after using any cleaning agents and/or a drum refresher pad that the service technician place those items in a sealable plastic bag and discard them. It is also recommended that the service technician wash his hands after handling such items.

3.4 Maintenance chart

Item		Service	Part number	Q'ty per unit	(× 1000) 30	60	90	120
Sheet bypass	Sheet bypass paper feed roller		FFPMA0518	1	○	×	○	× (×)
	Sheet bypass double feed prevention roller		FFPMA0520	1	×	× (×)	×	× (×)
	Sheet bypass paper transfer roller		FFPMA0521	1	×	× (×)	×	× (×)
	Torque limiter		FFPXF21D80	1	×	× (×)	×	× (×)
Paper feed unit	Paper feed roller		FFPMA0516	1	○	×	○	× (×)
	Cassette double feed prevention roller		FFPMA0517	1	×	× (×)	×	× (×)
	Timing roller		FFPMA05132	1	○	○	○	○
	Driven roller		FFPMA05222	1	○	○	○	○
	Paper cleaning sheet		FFPKP00731	1	○	○	○	○
	Torque limiter		FFPXC07D80	1	×	× (×)	×	× (×)
Developer unit	Charge corona wire		FFPEY0064	1		×		×
	Charge corona		FFPXG07D80	1	○	○	○	○
	Developer		FQ-ZF13	1	×	×	×	×
	Drum		FQ-HF13	1	×	×	×	×
	Waste toner bottle		FFPQA0143	1	Replace at 4,000 copies. (for user replacement)			
	Cleaning blade		FFPHK0905	1		×		×

○: Cleaning ×: Replacement

*( ): Replacement cycle based low usage.

*: Service personal can amend this schedule by taking into account the percentage of paper passed through each paper port. We feel that this will ensure more effective copier maintenance and cost effectiveness for your customers.

Item		Service	Part number	Q'ty per unit	(× 1000) 30	60	90	120
Fuser unit	Separation finger	upper	FFPLK03131	4	○	○	○	○
	Thermistor		FFPBL0013	1	○	○	○	○
	Fuser lamp		H12V1KWN1A (for 120V ver.) H22V1KWN1A (for 220/240V ver.)	1				× 5,000 hours lamp on or machine on.
	Heat roller cleaner		FFPKM02784	1	Replace at 4,000 copies. (for user replacement)			
	Heat roller		FFPMA05241	1	○	×	○	×
	Pressure roller		FFPMA0523	1	○	×	○	×
Optics	Exposure lamp		E08V025WN2A (for 120V ver.) E16V025WN2A (for 220/240V ver.)	1				×
	No. 1 mirror		FFPGC0179	1				
	N0. 2 mirror		FFPGC0180	1				
	N0. 3 mirror		FFPGC0181	1				
	N0. 4 mirror		FFPGC0174	1	○	○	○	○
	N0. 5 mirror		FFPGC0182	1				
	N0. 6 mirror		FFPGC0183	1				
	Lens		FFPGA0042	1				
Main body	Dust protection filter		FFPHJ0034	1	○	○	○	○
	Ozone filter		FFPHJ00351	1		×		×
	Discharge lamp filter		FFPGB0021	1	○	○	○	○
	Transfer/Separation corona wire		FFPEY0064	1		×		×
	Transfer/Separation corona (with discharge saw)		FFPXF10D80	1	○	○	○	○
	Dust protection glass		FFPGC0184	1	○	○	○	○
	Platen glass		FFPGC0154	1	○	○	○	○
	Platen mat		FFPNN00361	1	○	○	○	○

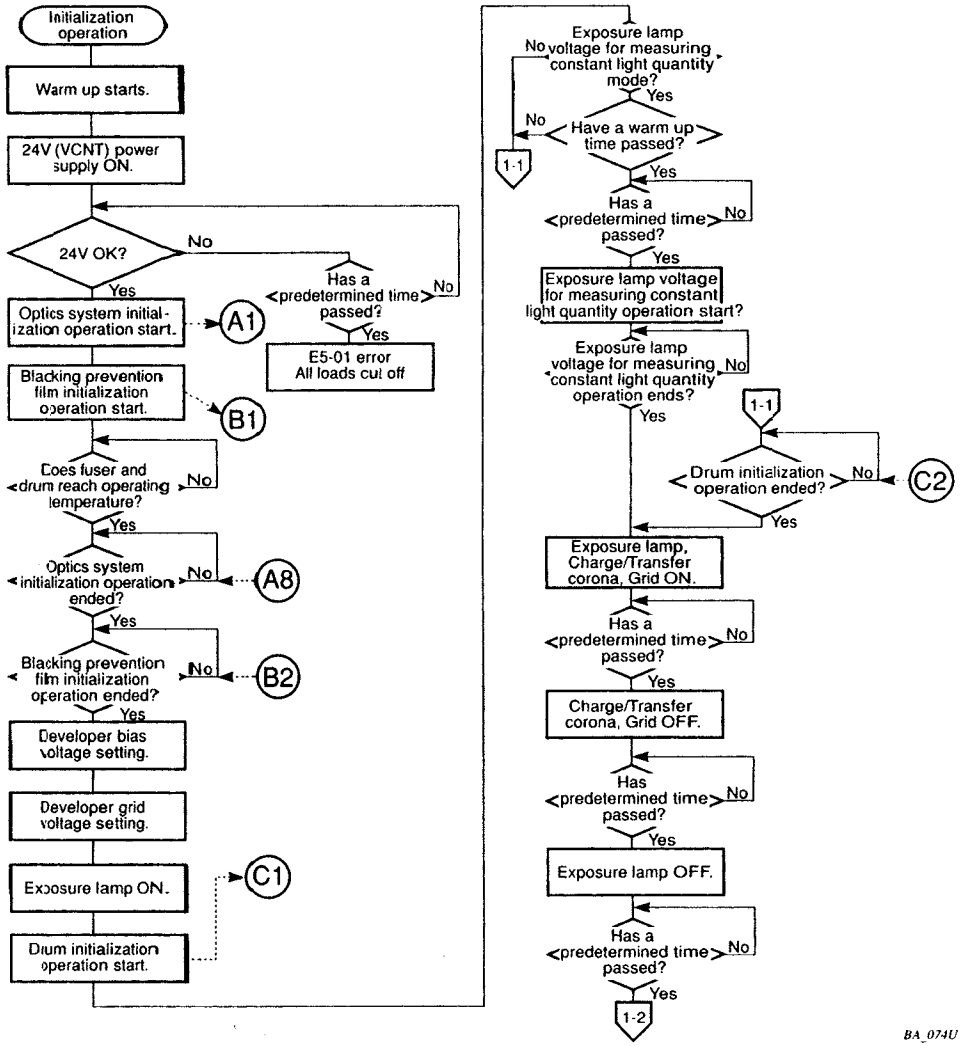
○: Cleaning ×: Replacement

Preventive Maintenansce

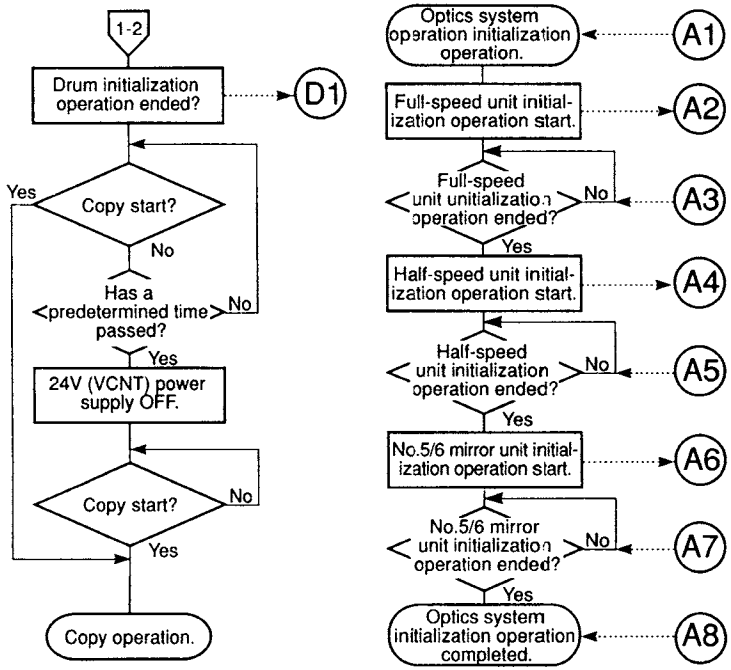
Section IV
Electrical

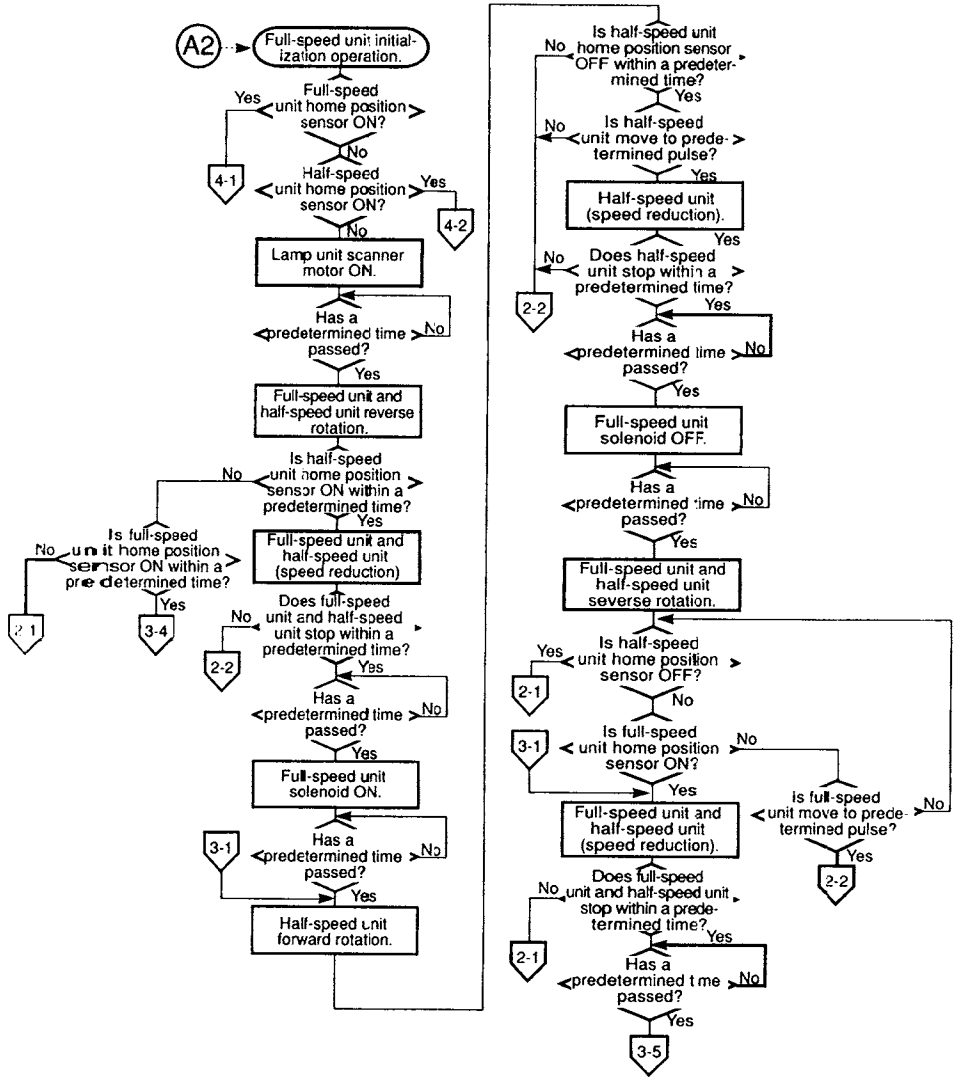
4.1 General flow chart

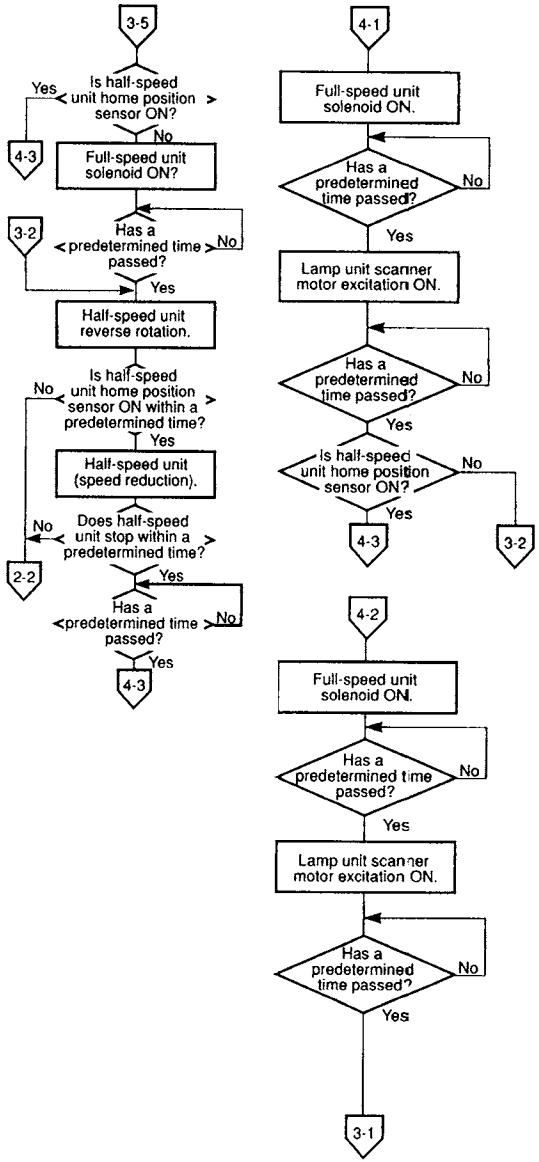
1. Power switch ON



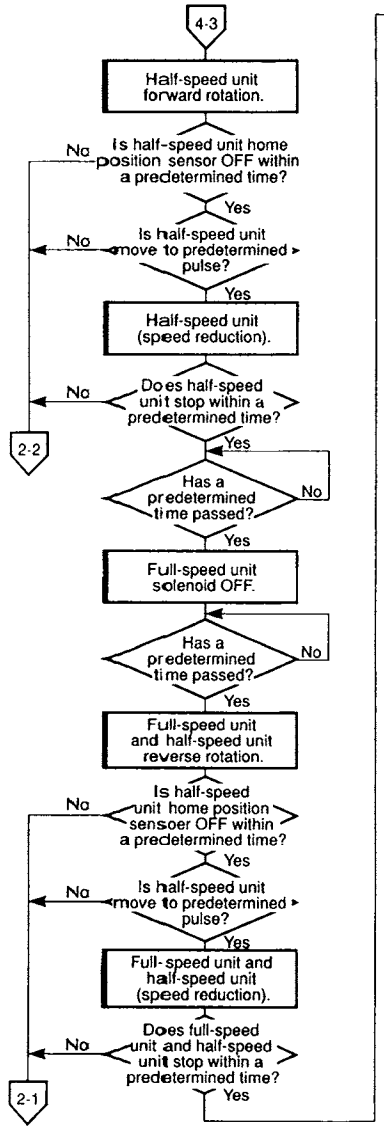
BA_074U

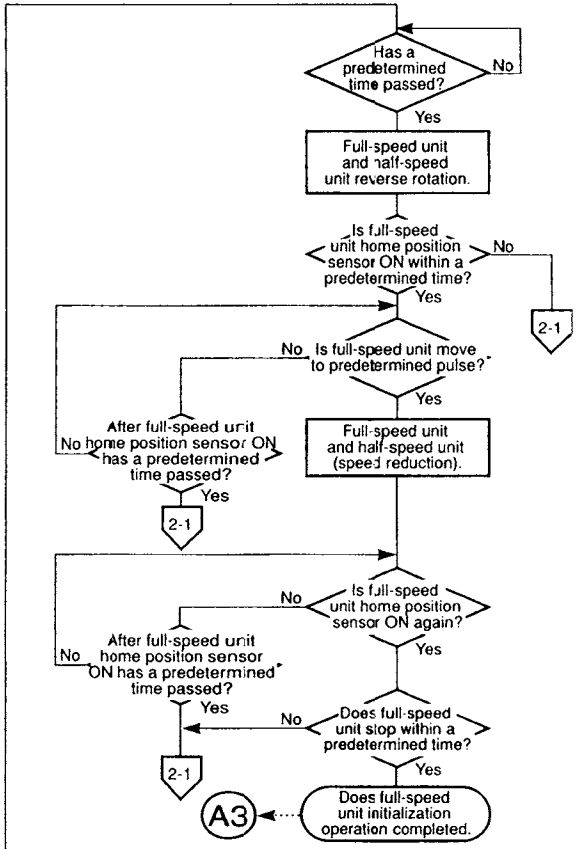

1-2
Drum initialization operation ended?
D1
Yes
Copy start?
No
Has a <predetermined time> passed?
No
Yes
24V (VCNT) power supply OFF.
Copy start?
No
Yes
Copy operation.
Optics system operation initialization operation.
A1
Full-speed unit initialization operation start.
A2
Full-speed unit unitialization operation ended?
No
A3
Yes
Half-speed unit initialization operation start.
A4
Half-speed unit initialization operation ended?
No
A5
Yes
No.5/6 mirror unit initialization operation start.
A6
No.5/6 mirror unit initialization operation ended?
No
A7
Yes
Optics system initialization operation completed.
A8
2-1
E1-01 error
All loads cut off
2-2
E1-21 error
All loads cut off
2-3
E1-22 error
All loads cut off
BA_075U


A2
Full-speed unit initialization operation.
Yes
Full-speed unit home position sensor ON?
No
4-1
Half-speed unit home position sensor ON?
Yes
4-2
No
Lamp unit scanner motor ON.
Has a <predetermined time> passed?
No
Yes
Full-speed unit and half-speed unit reverse rotation.
No
Is half-speed unit home position sensor ON within a predetermined time?
Yes
No
Is full-speed unit home position sensor ON within a predetermined time?
Yes
2-1
3-4
Full-speed unit and half-speed unit (speed reduction)
No
Does full-speed unit and half-speed unit stop within a predetermined time?
Yes
2-2
Has a <predetermined time> passed?
No
Yes
Full-speed unit solenoid ON.
Has a <predetermined time> passed?
No
3-1
Yes
Half-speed unit forward rotation.
No
Is half-speed unit home position sensor OFF within a predetermined time?
Yes
No
Is half-speed unit move to predetermined pulse?
Yes
Half-speed unit (speed reduction).
Yes
No
Does half-speed unit stop within a predetermined time?
Yes
2-2
Has a <predetermined time> passed?
No
Yes
Full-speed unit solenoid OFF.
Has a <predetermined time> passed?
No
Yes
Full-speed unit and half-speed unit severse rotation.
Yes
Is half-speed unit home position sensor OFF?
2-1
No
3-1
Is full-speed unit home position sensor ON?
No
Yes
Full-speed unit and half-speed unit (speed reduction).
Is full-speed unit move to predetermined pulse?
No
Yes
2-2
No
Does full-speed unit and half-speed unit stop within a predetermined time?
Yes
2-1
Has a <predetermined time> passed?
No
Yes
3-5
BA_076U

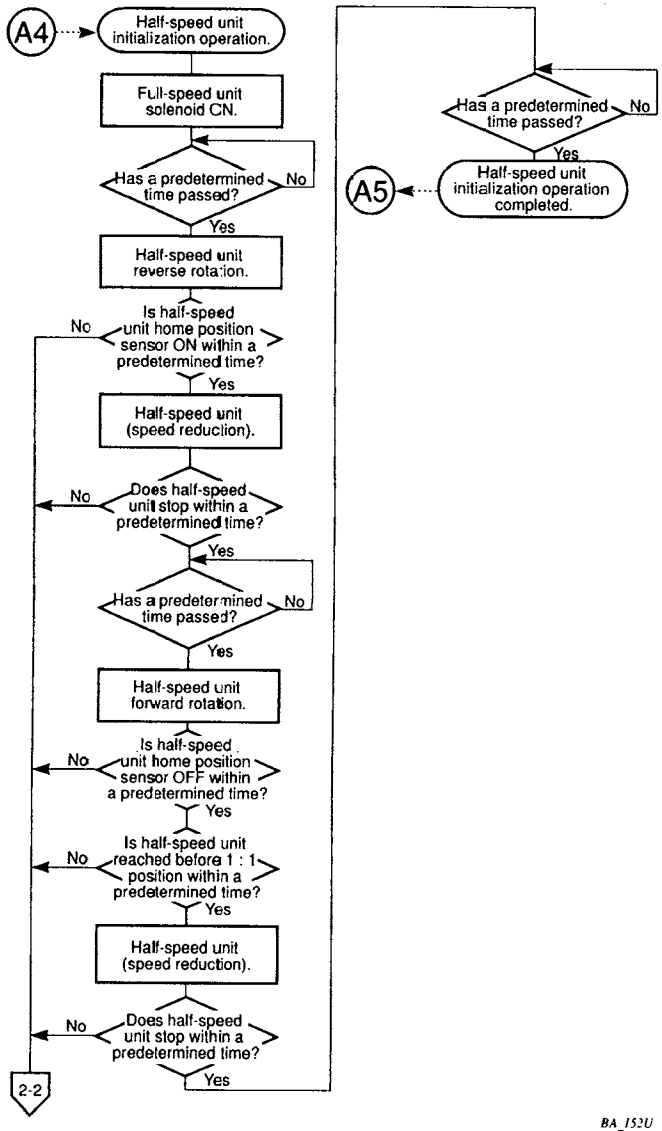


BA_077U

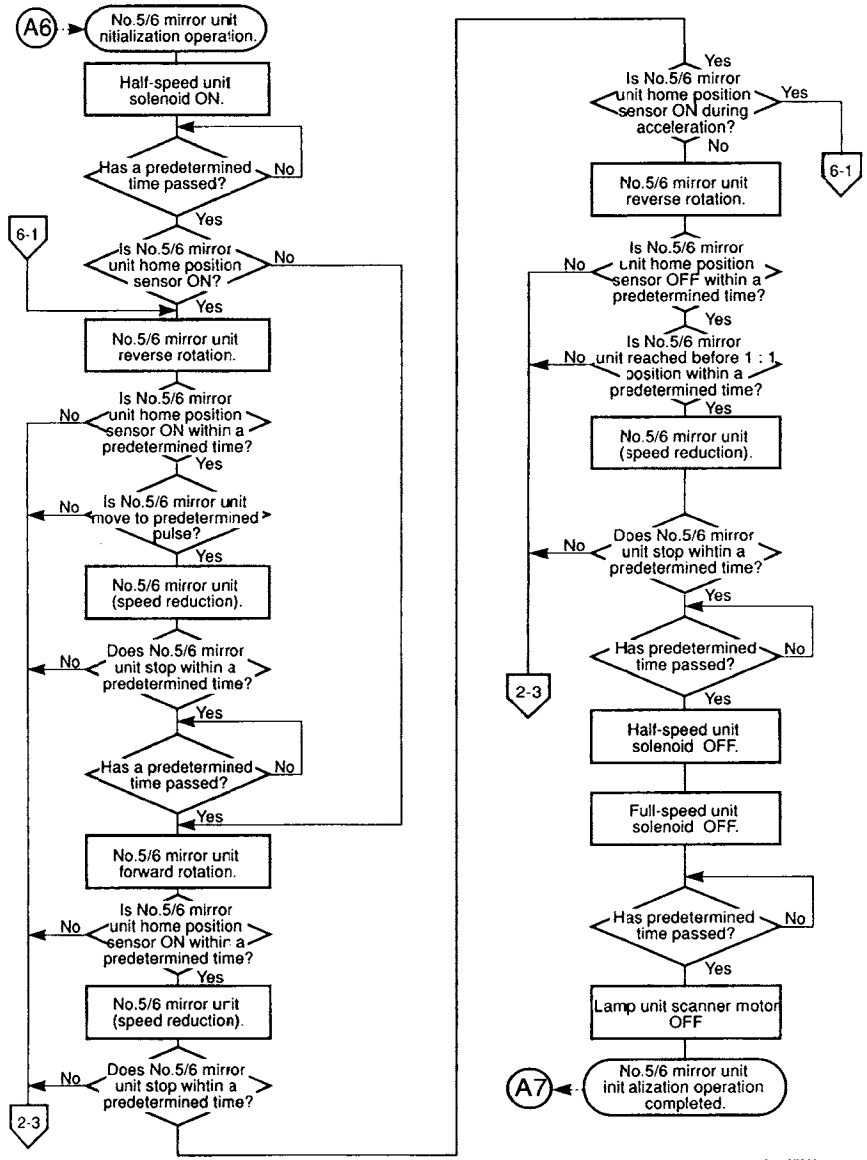



Has a predetermined time passed?
No
Yes
Full-speed unit and half-speed unit reverse rotation.
Is full-speed unit home position sensor ON within a predetermined time?
No
2-1
Yes
No Is full-speed unit move to predetermined pulse?
Yes
After full-speed unit No home position sensor ON has a predetermined time passed?
Yes
2-1
Full-speed unit and half-speed unit (speed reduction).
No Is full-speed unit home position sensor ON again?
Yes
After full-speed unit No home position sensor ON has a predetermined time passed?
Yes
2-1
No Does full-speed unit stop within a predetermined time?
Yes
A3
Does full-speed unit initialization operation completed.

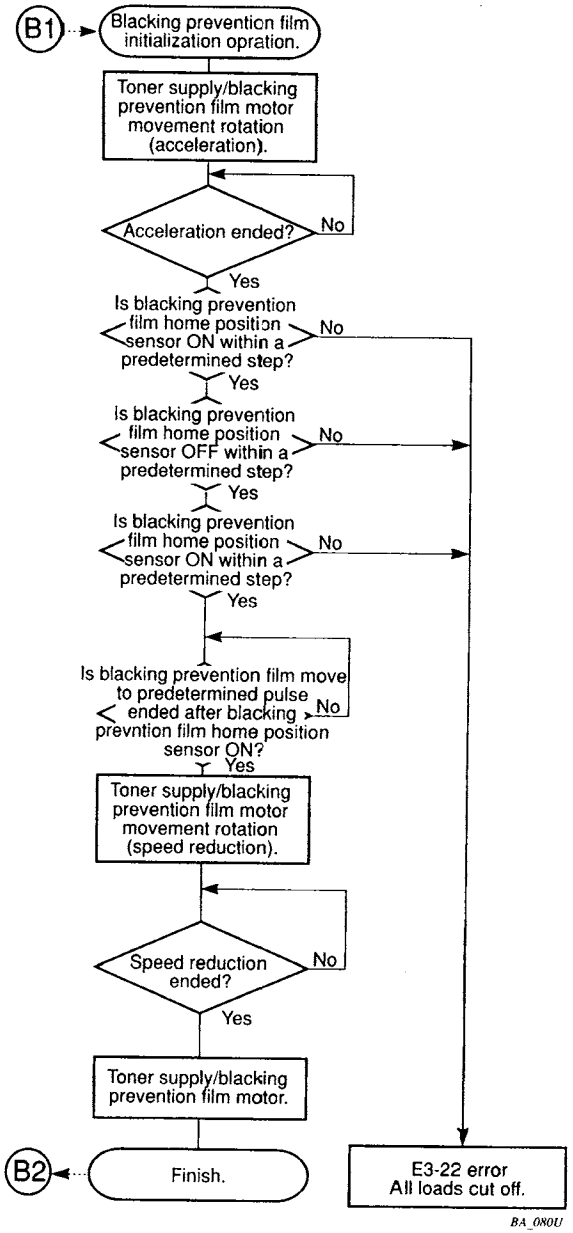
BA_078U

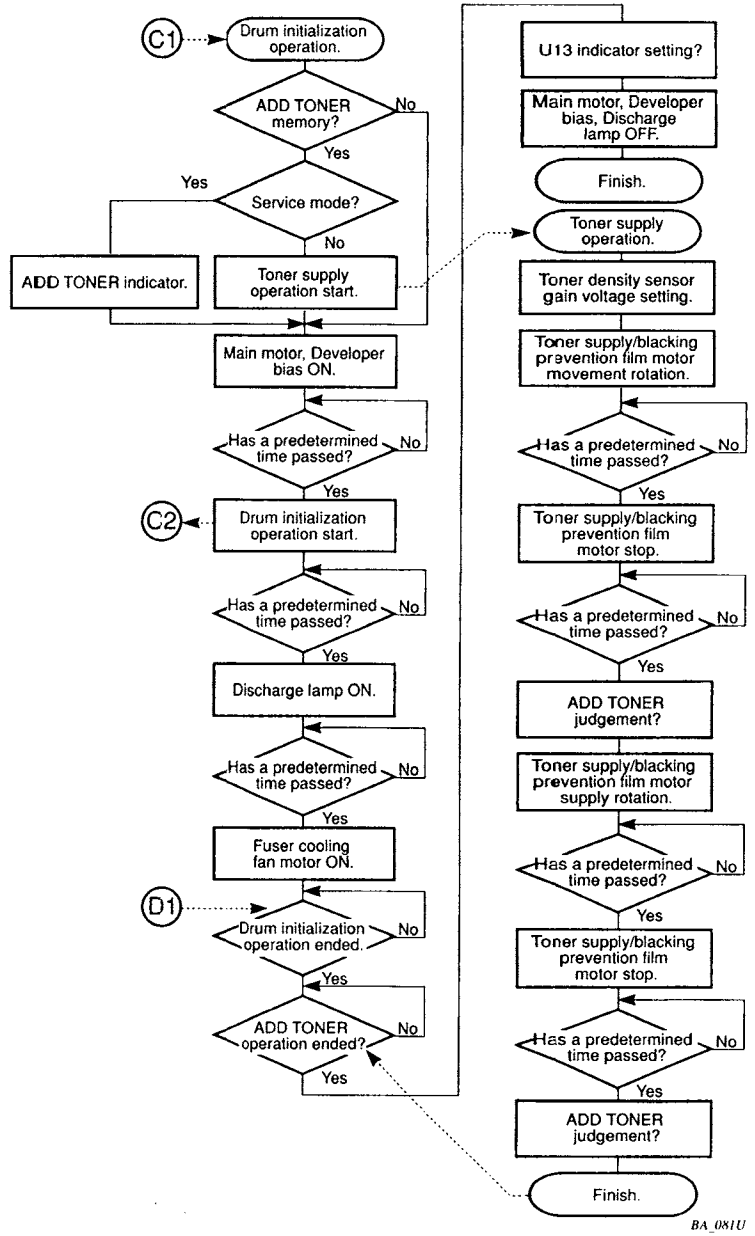


BA_152U

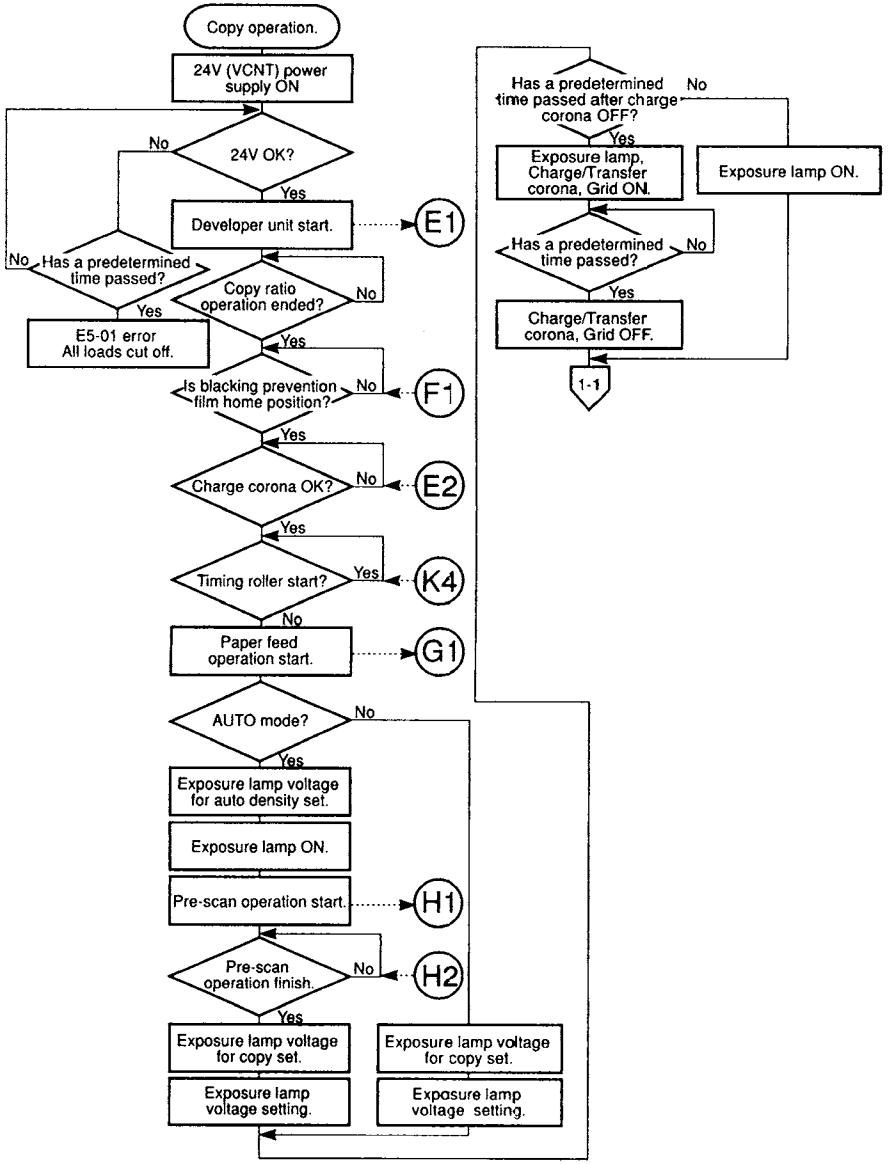


BA_079U

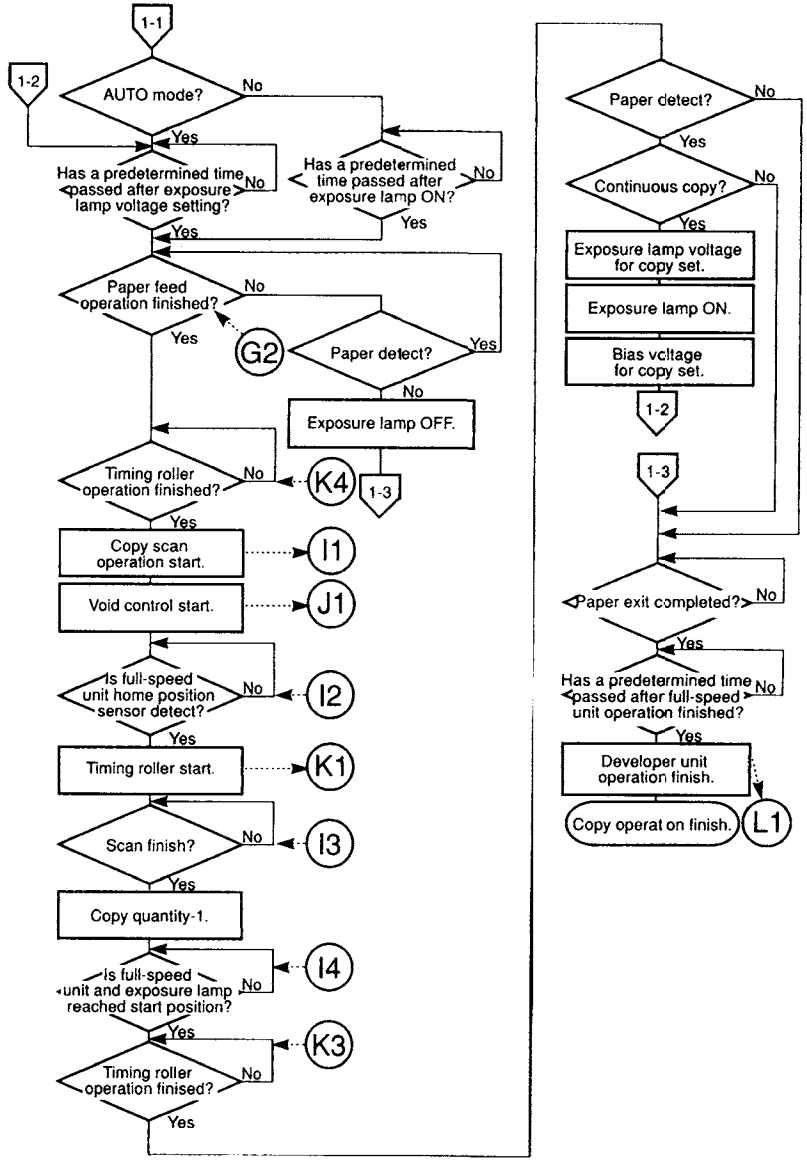

B1
Blacking prevention film initialization opration.
Toner supply/blacking prevention film motor movement rotation (acceleration).
Acceleration ended?
No
Yes
Is blacking prevention film home position sensor ON within a predetermined step?
No
Yes
Is blacking prevention film home position sensor OFF within a predetermined step?
No
Yes
Is blacking prevention film home position sensor ON within a predetermined step?
No
Yes
Is blacking prevention film move to predetermined pulse ended after blacking prevntion film home position sensor ON?
No
Yes
Toner supply/blacking prevention film motor movement rotation (speed reduction).
Speed reduction ended?
No
Yes
Toner supply/blacking prevention film motor.
B2
Finish.
E3-22 error
All loads cut off.
BA_080U


C1
Drum initialization operation.
ADD TONER memory?
No
Yes
Yes
Service mode?
No
ADD TONER indicator.
Toner supply operation start.
Main motor, Developer bias ON.
Has a predetermined time passed?
No
Yes
C2
Drum initialization operation start.
Has a predetermined time passed?
No
Yes
Discharge lamp ON.
Has a predetermined time passed?
No
Yes
Fuser cooling fan motor ON.
D1
Drum initialization operation ended.
No
Yes
ADD TONER operation ended?
No
Yes
U13 indicator setting?
Main motor, Developer bias, Discharge lamp OFF.
Finish.
Toner supply operation.
Toner density sensor gain voltage setting.
Toner supply/blacking prevention film motor movement rotation.
Has a predetermined time passed?
No
Yes
Toner supply/blacking prevention film motor stop.
Has a predetermined time passed?
No
Yes
ADD TONER judgement?
Toner supply/blacking prevention film motor supply rotation.
Has a predetermined time passed?
No
Yes
Toner supply/blacking prevention film motor stop.
Has a predetermined time passed?
No
Yes
ADD TONER judgement?
Finish.
BA_081U

2. Copy operation

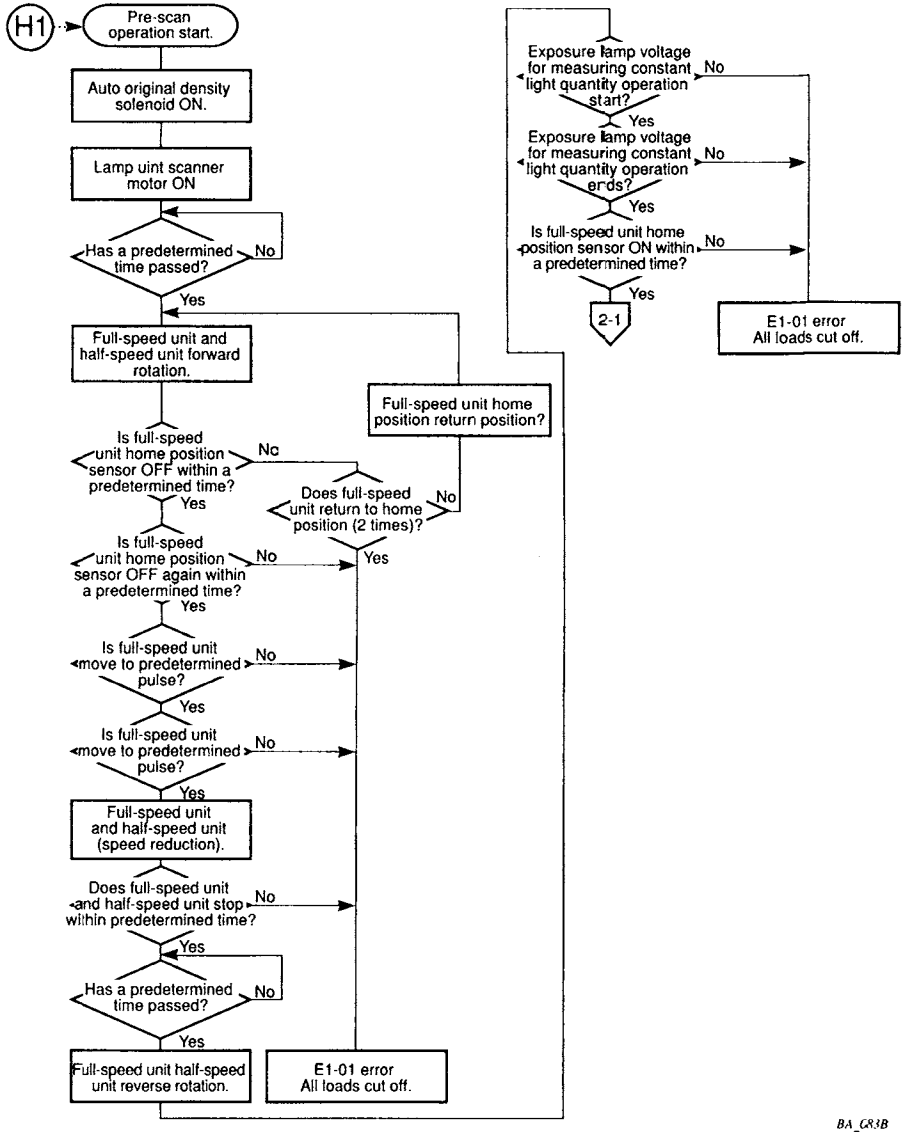


BA_082U



BA_153U

Electrical



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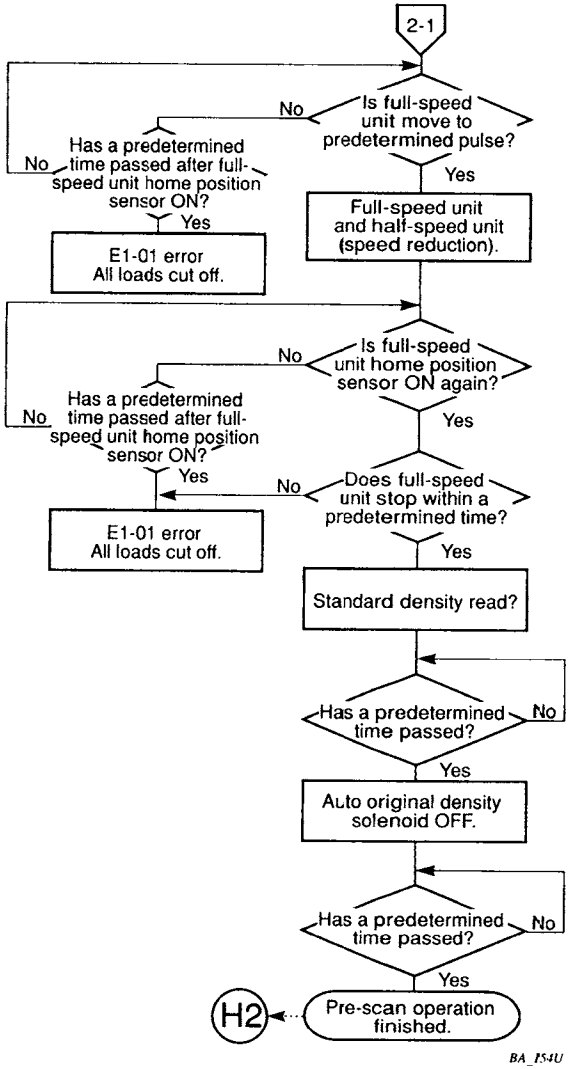
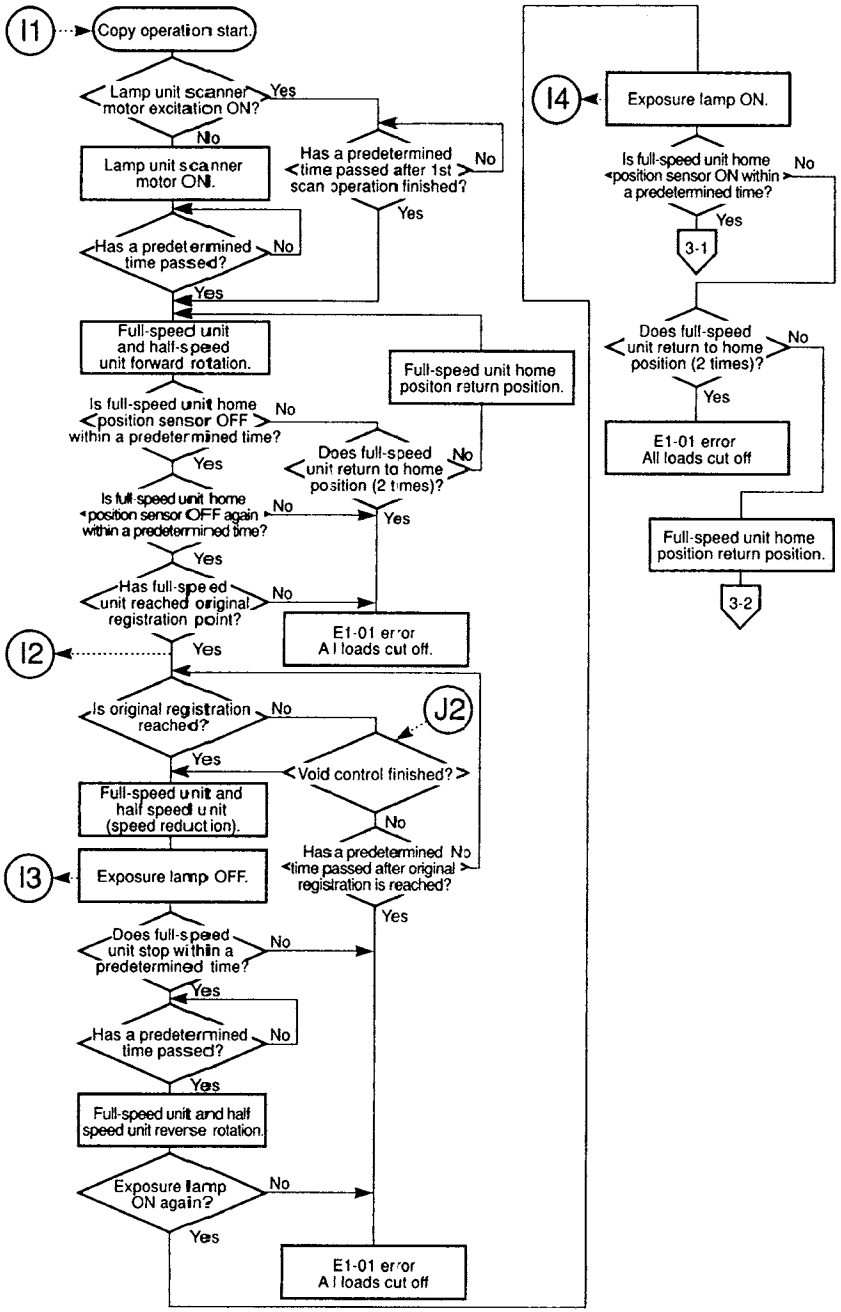
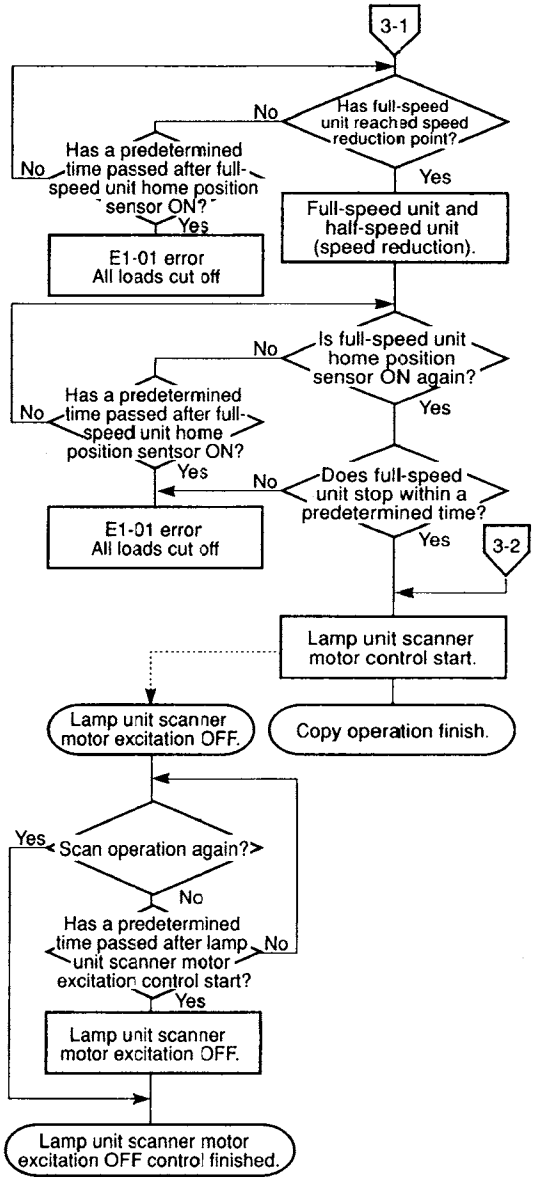


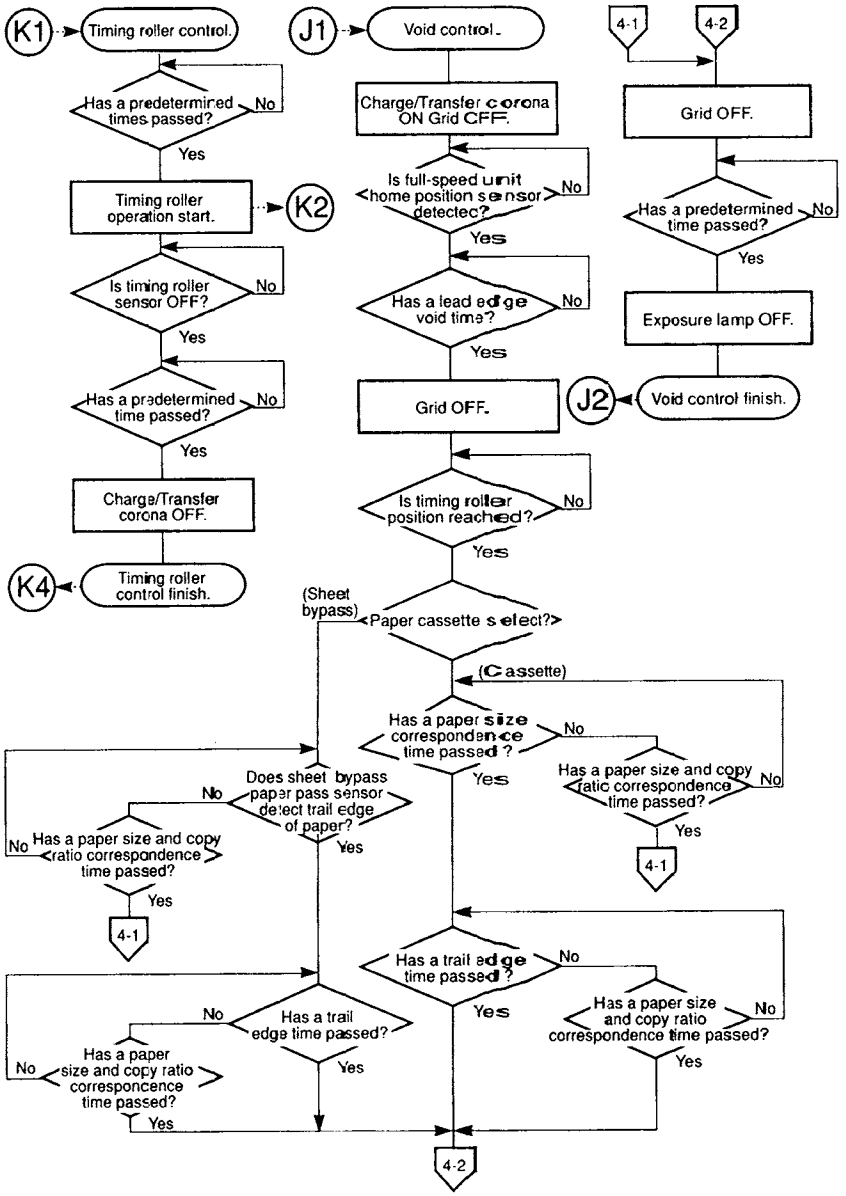
BA_IS4U



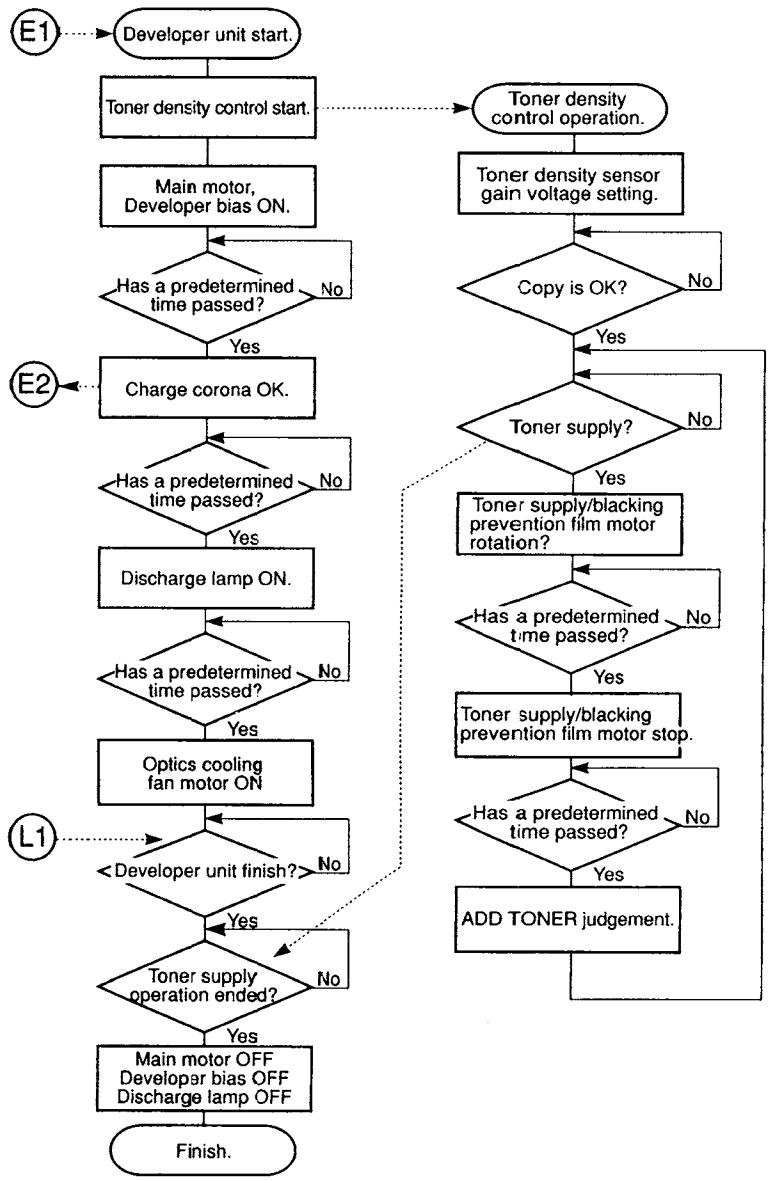
BA_081B



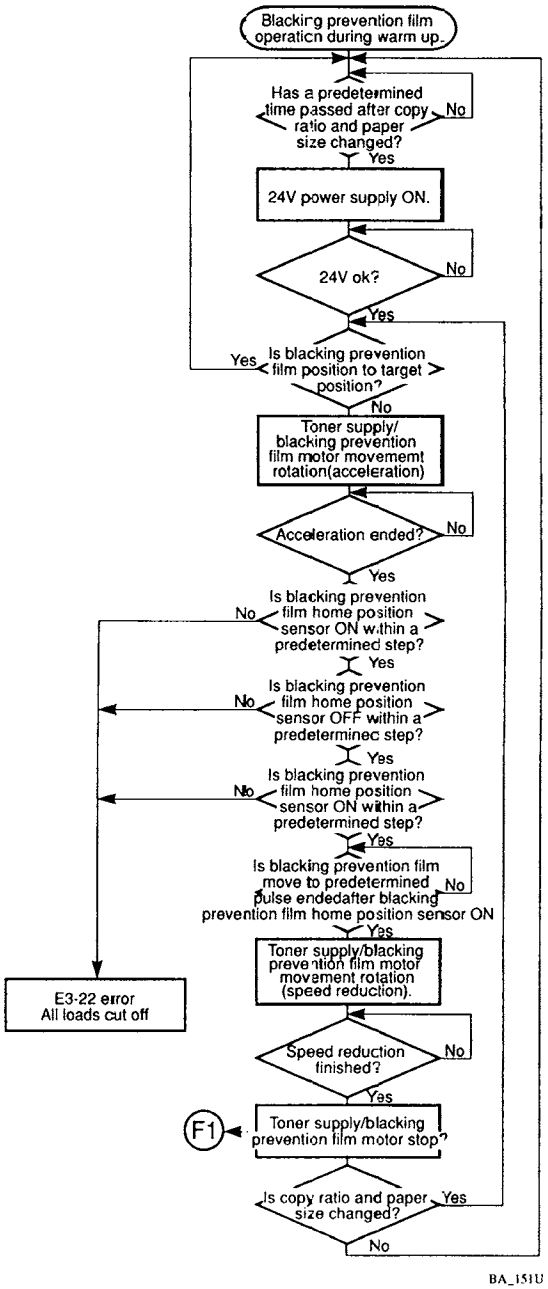
BA_155B



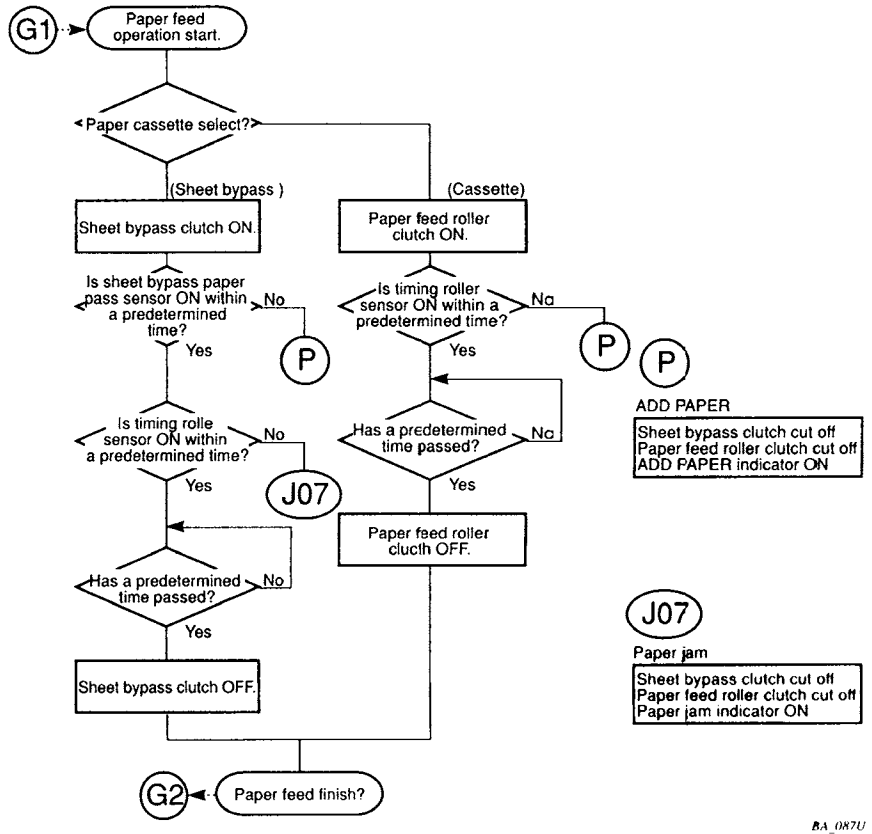
BA_085U



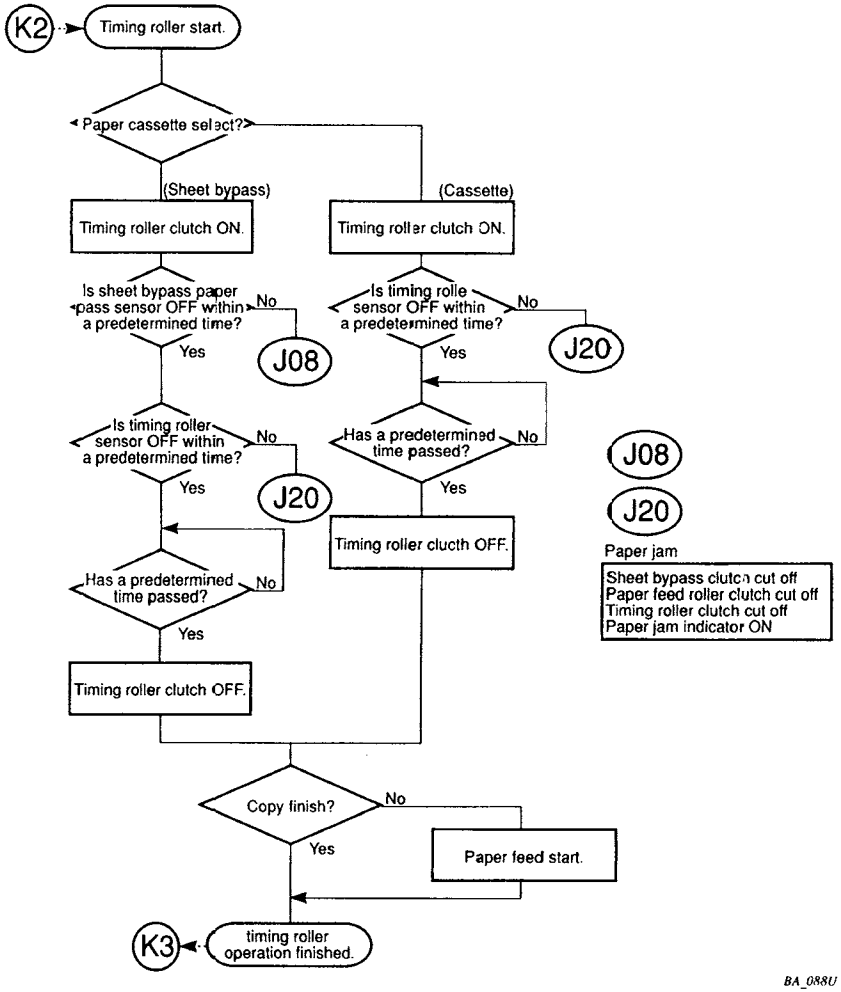
BA_086U



BA_151U



BA_087U



BA_088U

4.2 General (PCBs)

Listed below are PCBs (Printed Circuit Boards) and major electrical components along with a brief description of their operation and functions.

1. **CPU PCB**
   The CPU PCB performs the majority of machine logic. The CPU PCB uses one microprocessor to perform electrical/mechanical sequence operations. This PCB controls the microprocessor circuit, exposure lamp circuit, fuser temperature control circuit. The triangular wave circuit controls the exposure level. The stepping motor drive control input (ON/OFF, Forward/Reverse, Copy size ratio signal) are on the CPU PCB and perform the related high power switching. The CPU PCB is supplied with +24VDC from the LVPS PCB to regulate a +10VDC circuit to operate the CPU.

2. **Low voltage power supply PCB**
   This board supplies low voltage. The low voltage power supply circuits supply stabilized +5VDC and +24VDC. +5VDC operates CPU PCB. The +24VDC operates solenoids, main motor and lens unit scanner motor. This board supplies the operational circuits for the exposure lamp, and fuser lamp. The zero cross generation circuit is supplied to the CPU PCB.

3. **High voltage power supply PCB**
   The high voltage power supply has six functions. It supplies the charge corona (for Document and Photo mode) and transfer corona with high voltage DC, and the magnetic brush with a bias voltage. It also supplies grid voltage and shield current. It supplies the Discharge saw with high voltage DC.

4. **Optics driver PCB**
   This PCB controls the lamp unit scanner motor drive circuit, fan motor, each sensor and each solenoid for the copy ratio control circuit.

5. **Control panel PCB**
   Control panel for the LED section allows the operator to monitor the operation of the copier. It indicates for example, the selected amount of copies, selected paper size, zoom, copy ratio, and selected exposure lamp levels, etc, using the LED display and appropriate keys.

4.3 Description of circuits

1. Triangular wave generating circuit

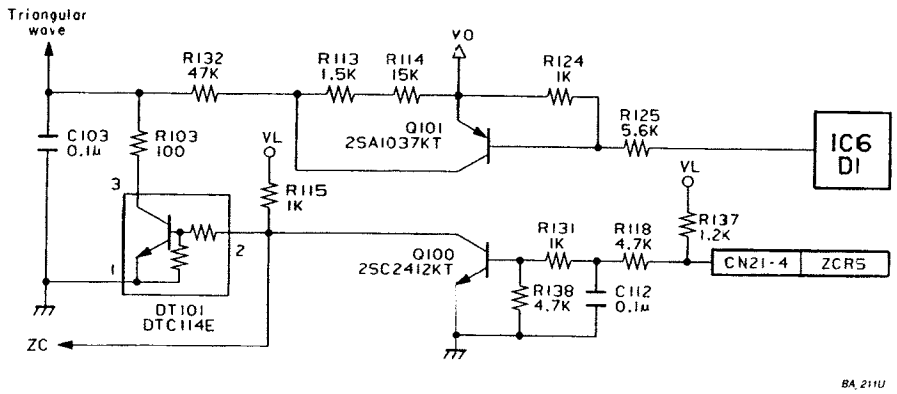


Figure 4-22-1

The CPU PCB generates triangular waves that are synchronized with the power supply wave forms (two times the frequency) and supplied to the exposure lamp control circuit to perform phase control. The circuit construction is shown in figure 4-22-1. ZCRS is a full-wave rectified AC pulse with a frequency twice the power supply frequency. Q100 and DT101 are turned ON/OFF by ZCRS, while the triangular waves are generated by the intergrated circuit comprised of R113, R114, R132 and C103. Frequency control signal is always "Low" level and Q102 is always a "ON". The operational time of the triangular wave generating circuit is shown in figure 4-22-2.

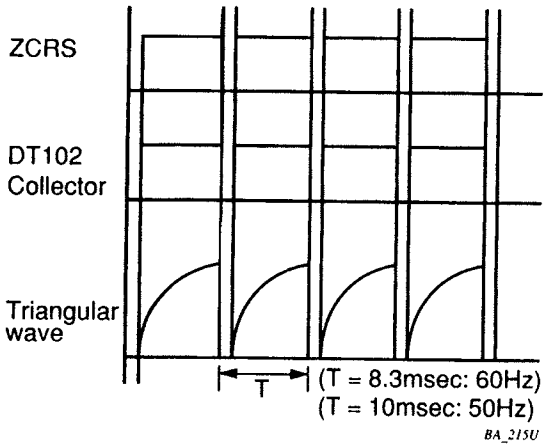


Figure 4-22-2

2. Fuser temperature control circuit

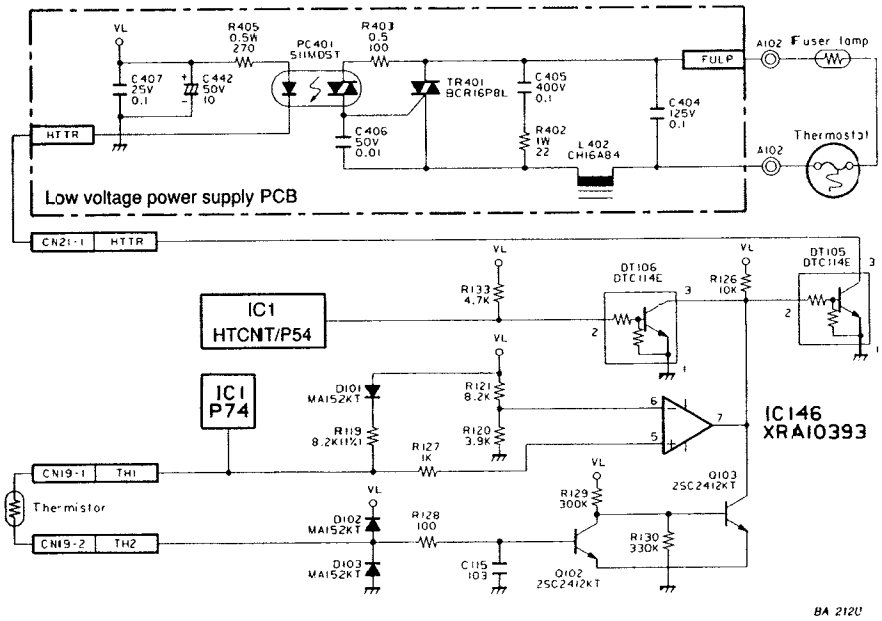


Figure 4-23-1

The CPU PCB fuser temperature control circuit turns the fuser lamp on when the fuser temperature falls below the specified temperature and turns the lamp off when it exceeds the operating temperature. The functions of this circuit are:

- Fuser temperature control.
- Detection of thermistor circuit.
- Turns the fuser off during a copier malfunction.

If the fuser temperature drops below the set level, a "High" level signal is output through terminal HTCNT of IC1, the transistor ("High" level ON) of DT105 turns ON, and the fuser lamp is turned on by the operation of PC401 on low voltage power supply PCB. As the fuser temperature reaches its set level, terminal HTCNT of IC1 is switched to a "Low" level by the change in resistance of the thermistor.

Transistor DT105 turns OFF, and the fuser lamp goes out. In this way, the fuser temperature is maintained at a constant level. The temperature is detected by the thermistor by inputting the voltage (+5V) that is generated as a power supply into IC1.

Electrical

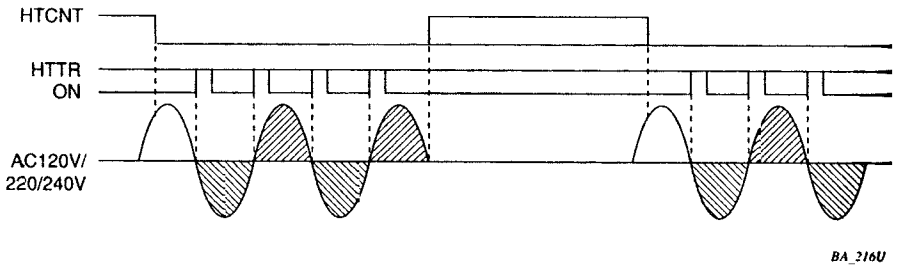


Figure 4-24-1

If the thermistor develops burnout, transistor Q102 turns OFF, transistor Q103 turns ON, and the base(B) of DT105 becomes a "Low" level, ensuring that transistor DT105 doesn't turn ON and prevents the fuser lamp from lighting. If fuser temperature rises abnormally due to faults (other than burnout) of the thermistor, etc, the change in voltage (inverse input terminal side) of the positive terminal of IC146 causes the base(B) of DT105 to become a "Low" level, preventing transistor DT105 from turning ON and turning OFF the fuser lamp and therefore protects the fuser unit from damage.

3. Exposure lamp control circuit

The CPU PCB controls the ON/OFF signal and intensity of the exposure lamp. The ON/OFF signal from the CPU is IC2(LPCNT1) (Exposure lamp control signal). When the PRINT key is pressed, the exposure lamp control signal goes "High" until the end of scan. During return scan, the exposure lamp control signal is "Low" until copy end.

Transformer (T401) is connected in parallel with the exposure lamp and feeds back the applied voltage signal on the exposure lamp to the CPU PCB. The circuit construction is shown in figure 4-25-1.

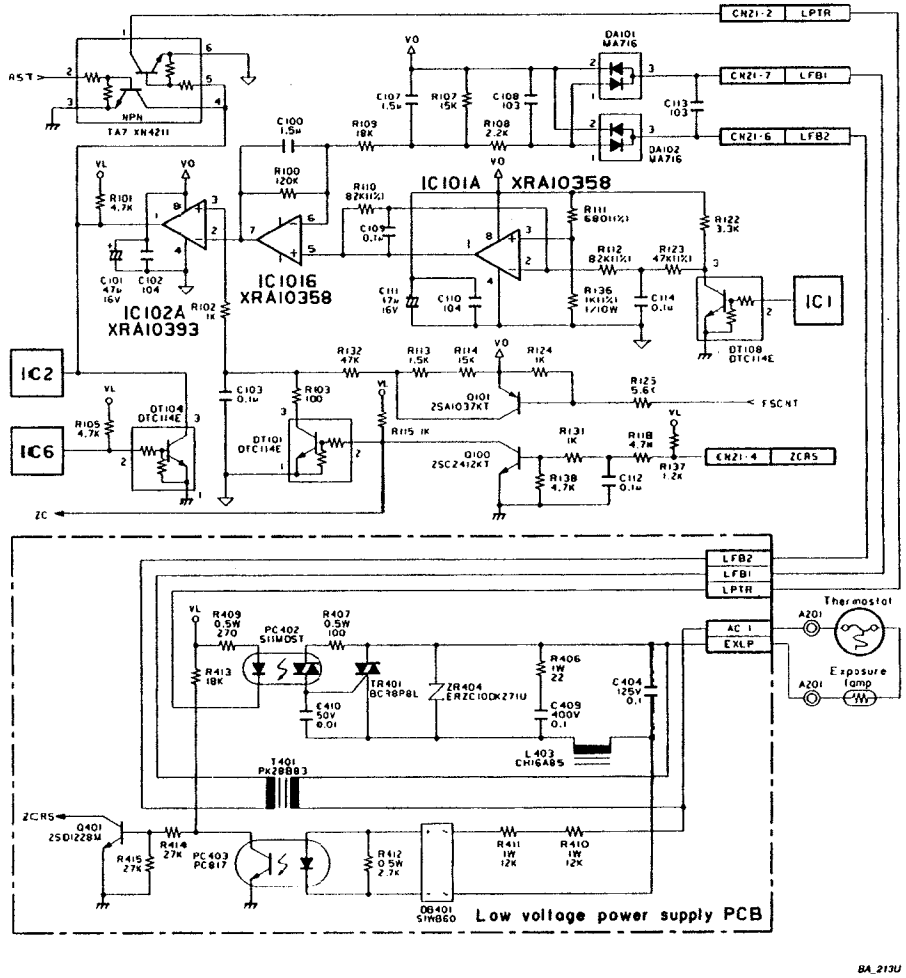


Figure 4-25-1

Electrical

The secondary voltage of the transformer is full wave-rectified by DA101 and DA102 after being divided by R107 and R108 and filtered by C102 into DC waveforms. One of the DC waveforms is connected to +10V, and the other is connected to the non-inverted input terminal of IC1016 (opamplifier) through R109.

When TA7 turns ON, PC402 is activated to light the exposure lamp. The light exposure amount is varied by varying the signal sent from IC2 by means of the voltage at the inverted input terminal of IC101A. A change in the exposure amount occurs in the following cases.

a. When the exposure control keys on the control panel are pressed.
b. When the PHOTO Mode key on control panel is selected.
c. When reduction, 1:1 and enlargement keys are pressed.

IC1016 amplified voltage goes to the inverted input terminal of IC102A, then it is compared with the triangular waveforms at the non-inverted input terminal of IC102A. The output of IC102A, an open collector type comparator pulled up by R105, enters into the base of TA7. When TA7 is in the ON state, the exposure lamp lights. In normal operation, when the exposure lamp control signal is "High", LPTR (Trigger signal for exposure lamp) is transmitted by switching TA7 from the output of IC102A. The operational time of exposure lamp control circuit is shown in figure 4-26-1.

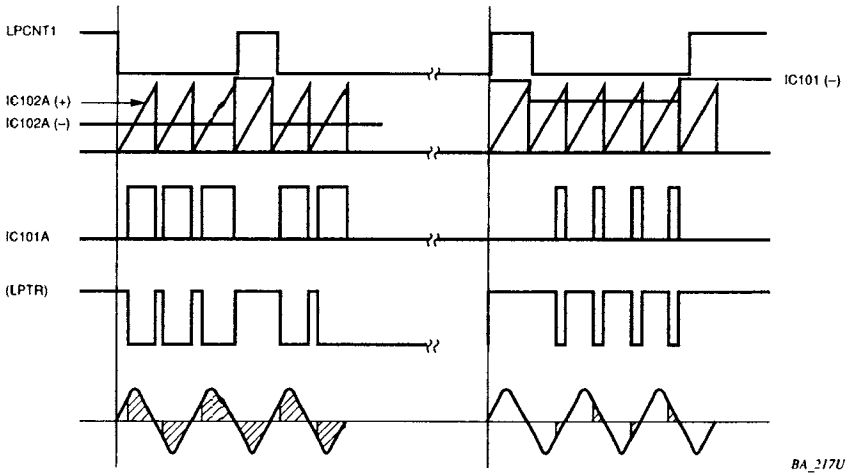


Figure 4-26-1

4. Auto original density control circuit

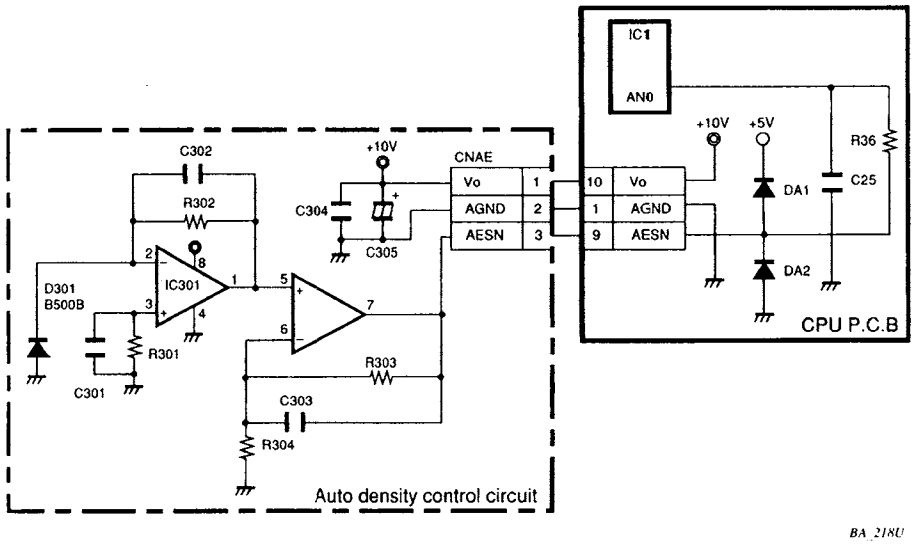


Figure 4-27-1

This circuit of the CPU PCB detects the original density by comparing the signal received from the auto original density sensor with the reference voltage. It reads the light reflected from original during pre-scan with the sensor of D301 and outputs it as AESN (Auto original density sensor signal). If the original density is dark, the output of the auto original density sensor goes "Low". If the original density is light, it goes "High"; AESN is output, and it is then input into AN1 of IC1. In this way, the density levels of the original and reference pattern are read, computation is performed, and the exposure level is regulated accordingly, and image density is controlled.

5. Main motor control circuit

This circuit is located on the main motor. The main motor is controlled by (PLL) phase comparison, according to the reference frequency prepared by the crystal oscillator. Figure 4-29-1 shows a block diagram of IC, Figure 4-28-1 shows a circuit diagram and Figure 4-30-1 shows a waveform. The speed sensor matched to the speed of the main motor, is input and waveform shaping (waveform of Ⓐ) into ④ and ⑤ of IC. This pulse is signal-processed inside the IC; if the speed is fast, the analog voltage of ㉖ rises; if slow, it drops (waveform of Ⓑ). This analog voltage is compared with a chopping wave (waveform of Ⓒ), and the drive circuit is kept ON, allowing current to flow to the motor until the voltage of the chopping wave becomes higher. As a result, the duty of the output becomes small, supplying additional current to the motor, when the load of the motor is heavy (waveform of Ⓔ). Because the main motor is a brushless motor, the rotor position is detected by the built-in hall element H1, H2 and H3 and the electric current of each phase is sent in order. Consequently, the output waveform of ⑧, ⑨, and ⑩ drivers are matched to the waveform of Ⓕ of Figure 4-30-1. The duty becomes large, supplying less current to the motor when the load is light. The current control circuit in the Ⓖ of Figure 4-29-1 ensures that no more than 3A of current flows to the motor, when it starts or if the motor is in a locked condition. When the motor is stopped, the CPU sets the MMCNT high, and turns OFF the drive circuit. If the frequency of the speed sensor of waveform of Ⓐ of Figure 4-30-1is within ± 6% of the prescribed value, the MMLCK goes "Low", while others turn "High". If the motor speed becomes abnormal, the CPU detects this signal and displays machine error.

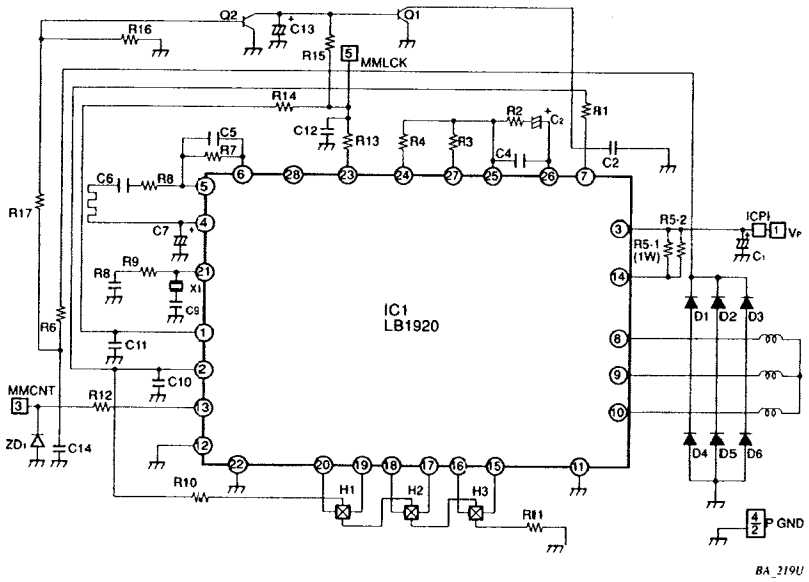


Figure 4-28-1

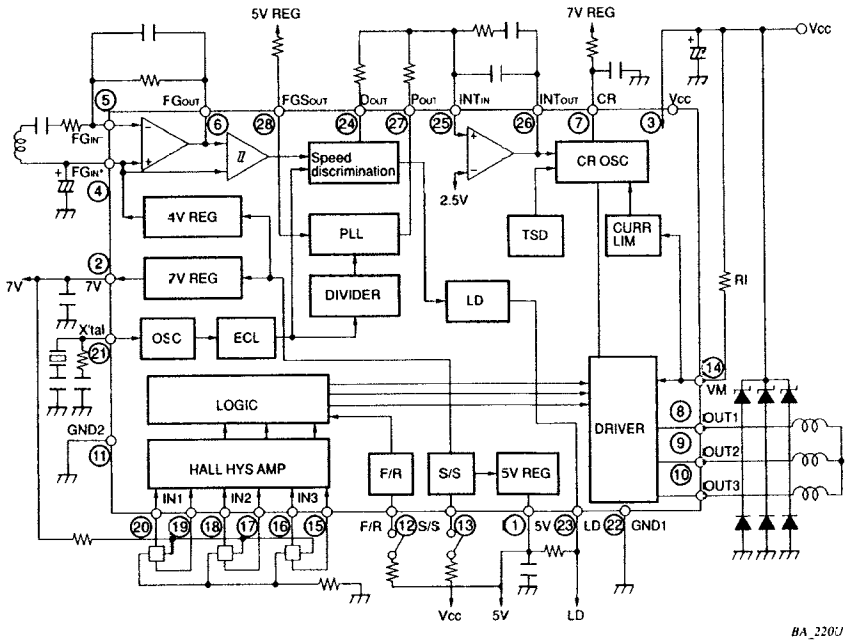


Figure 4-29-1

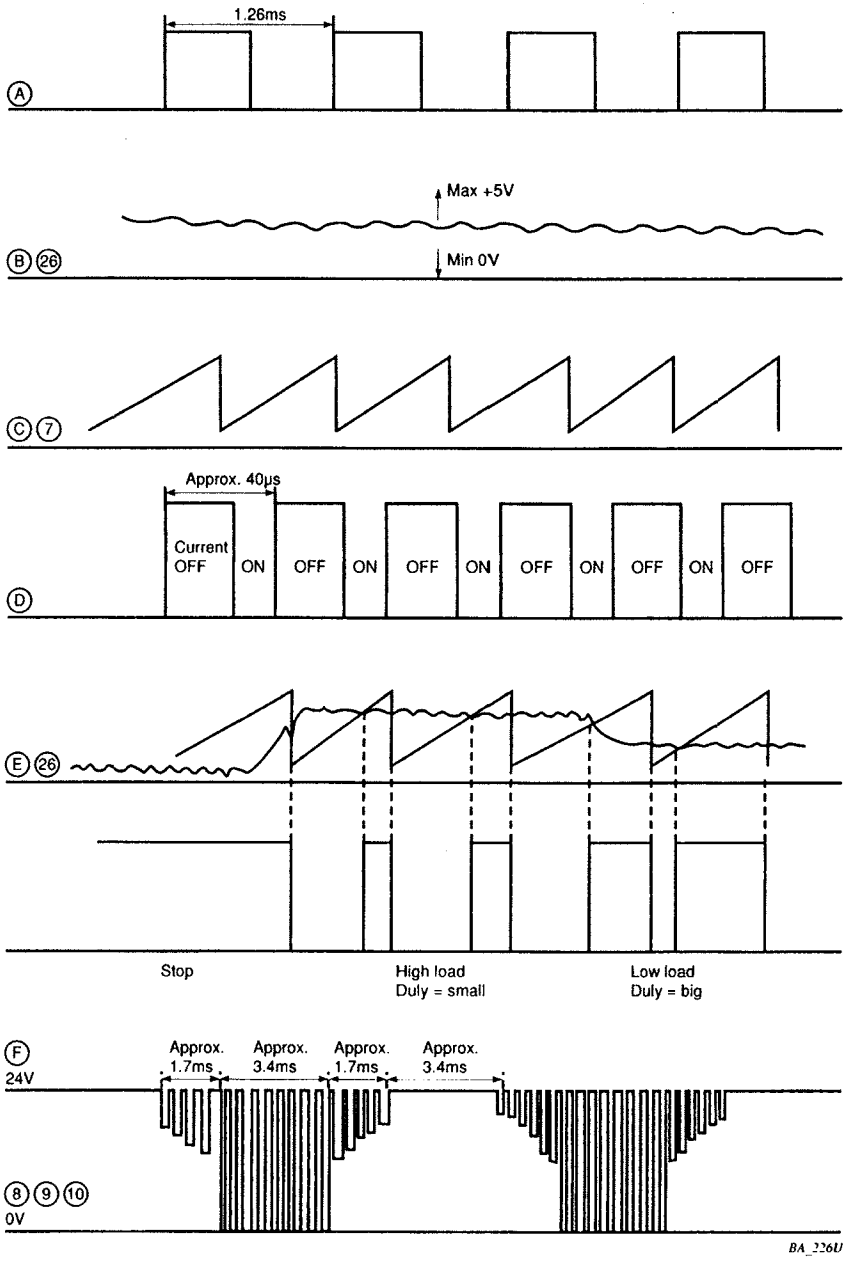


Figure 4-30-1

6. Lamp unit scanner motor control circuit

The lamp unit scanner motor is a 4-phase stepping motor driven by constant-current. A block diagram of this circuit is shown in Figure 4-31-2. The stepping motor is rotated by exciting phases A→B→$\bar{A}$→$\bar{B}$, in this order. By exciting phases in reverse order, the motor rotates in the reverse direction (Figure 4-32-1). In the driver of IC651, the set value of current is determined by the reference voltage that is divided by R659 and R661. If the motor current exceeds this set current value at the time of motor excitation, the driver turns OFF.

Excitation is done by repeatedly turning the driver ON/OFF in this way (Figure 4-32-2).

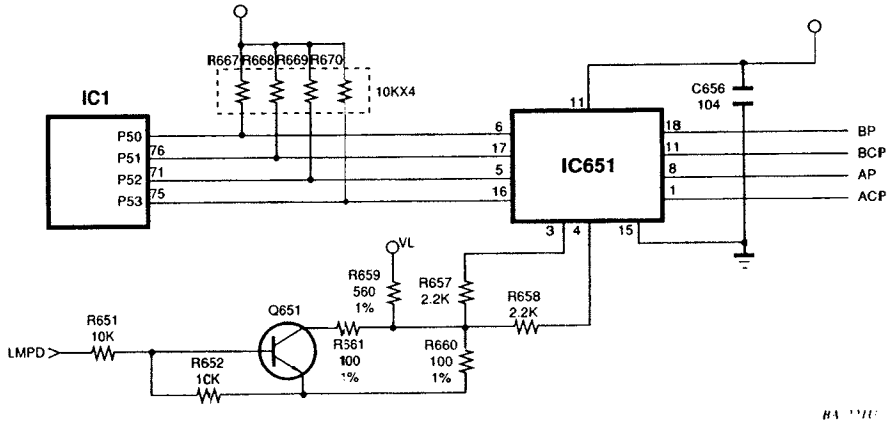


Figure 4-31-1

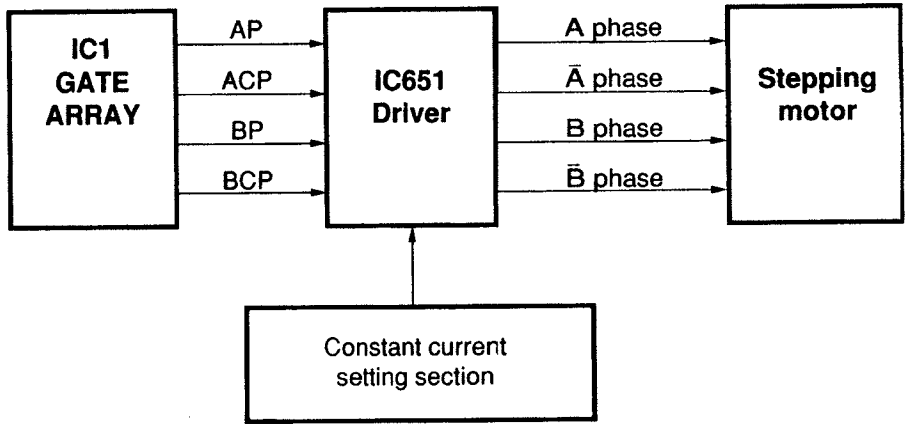


Figure 4-31-2

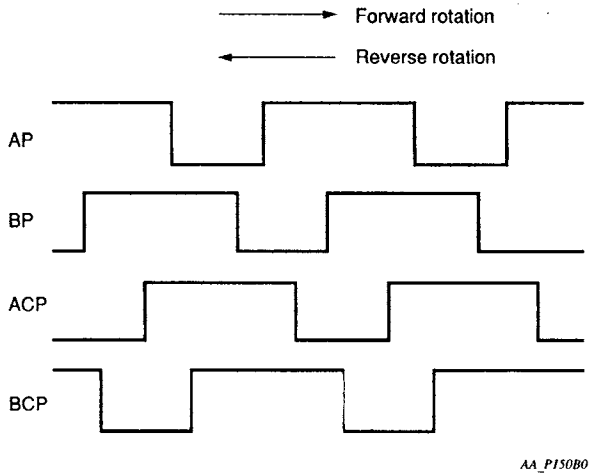


Figure 4-32-1

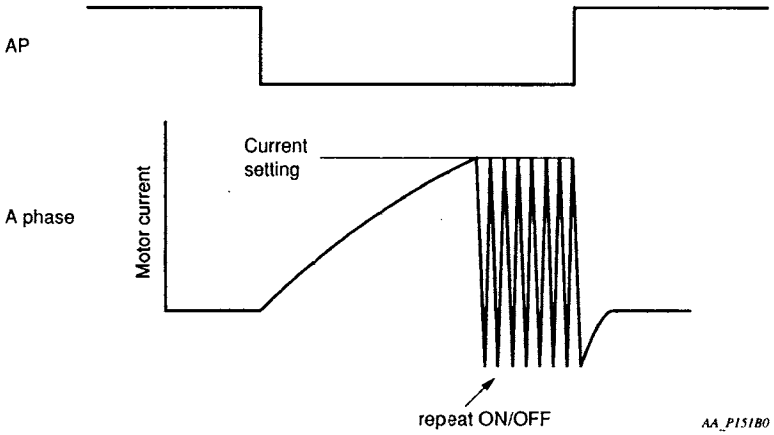


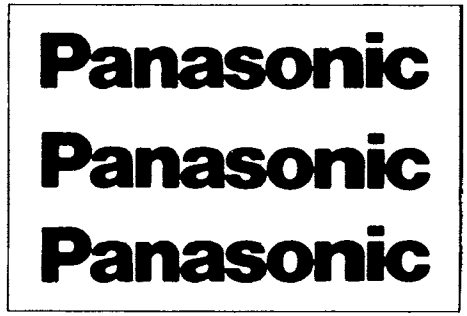
Figure 4-32-2

Section V
Troubleshooting

5.1 Problem flowchart

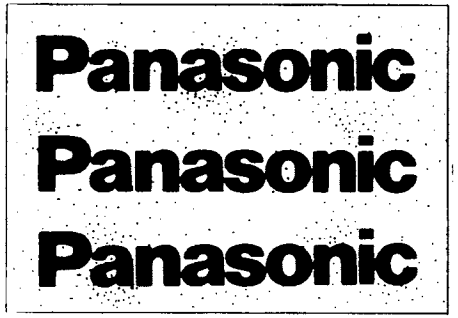
1. **Image information**
   - **Normal copy sample**
     Use this example as a good image reference.

Paper feed direction ←

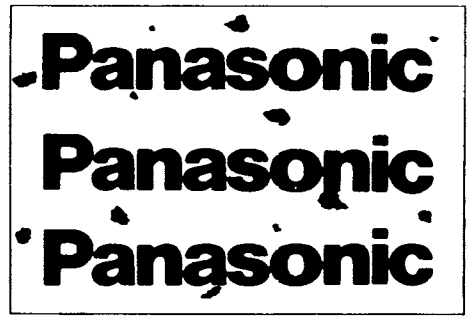


AA_S162U0

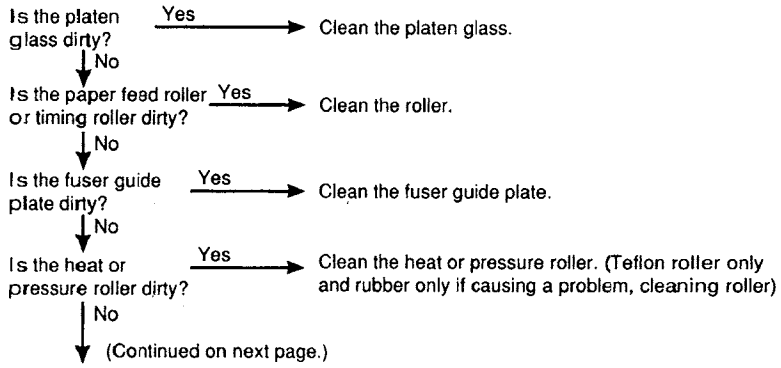
PROBLEM: IRREGULAR DIRT



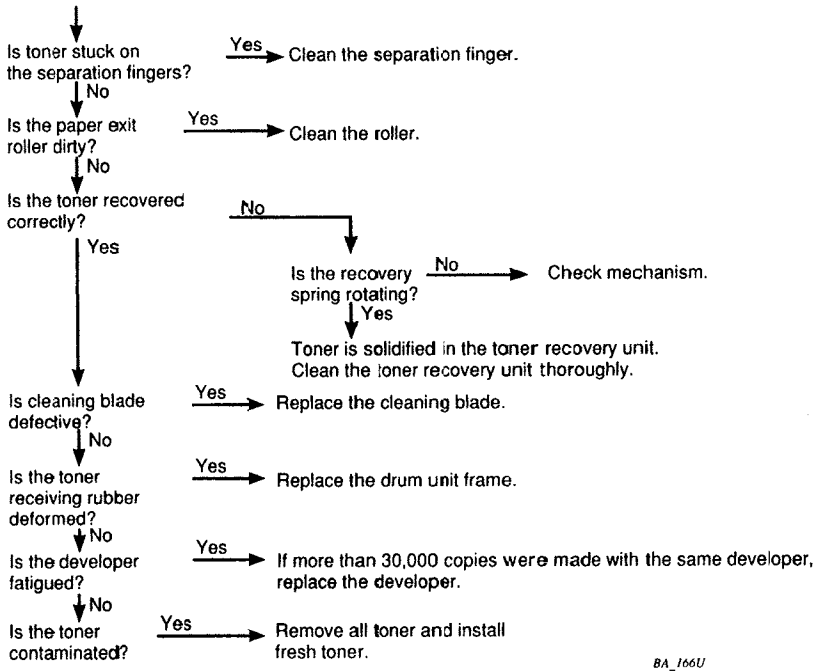
AA_S163U0



AA_S164U0


Is the platen glass dirty?
Yes
Clean the platen glass.
No
Is the paper feed roller or timing roller dirty?
Yes
Clean the roller.
No
Is the fuser guide plate dirty?
Yes
Clean the fuser guide plate.
No
Is the heat or pressure roller dirty?
Yes
Clean the heat or pressure roller. (Teflon roller only and rubber only if causing a problem, cleaning roller)
No
(Continued on next page.)

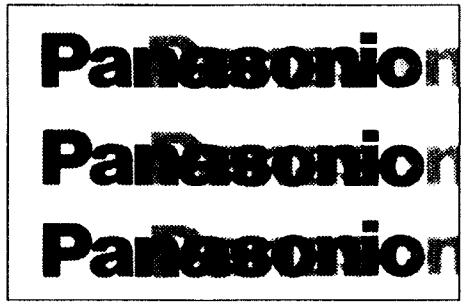
BA_165U



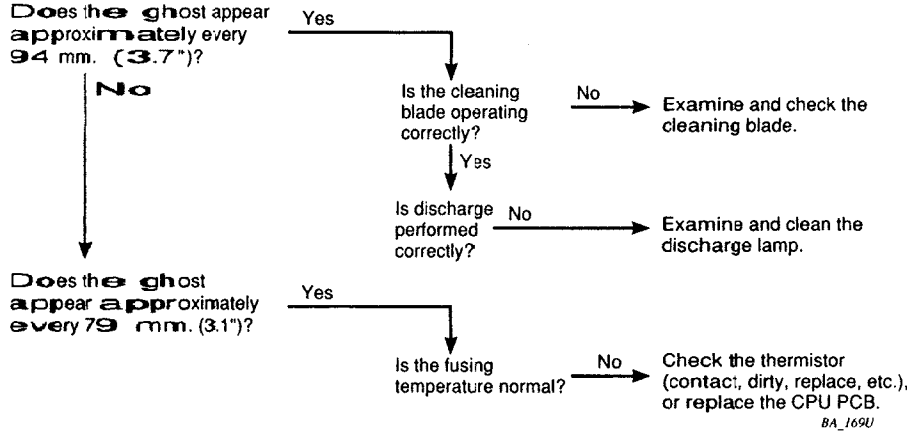
BA_166U

PROBLEM : GHOST-REPEATED IMAGE

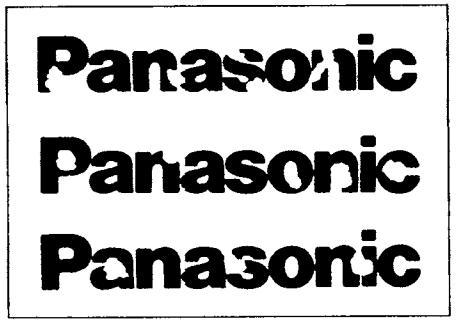
AA_S167U0



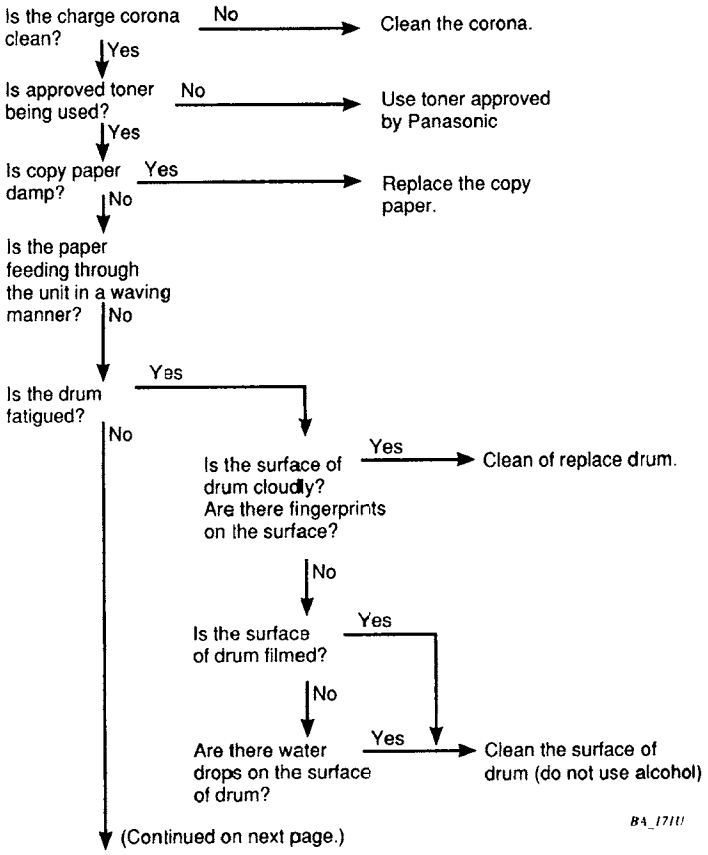
AA_S168U0


Does the ghost appear approximately every 94 mm. (3.7")?
Yes
No
Is the cleaning blade operating correctly?
No
Examine and check the cleaning blade.
Yes
Is discharge performed correctly?
No
Examine and clean the discharge lamp.
Does the ghost appear approximately every 79 mm. (3.1")?
Yes
Is the fusing temperature normal?
No
Check the thermistor (contact, dirty, replace, etc.), or replace the CPU PCB.

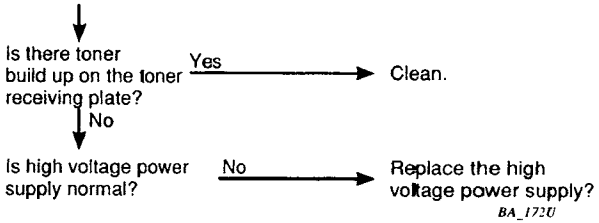
BA_169U



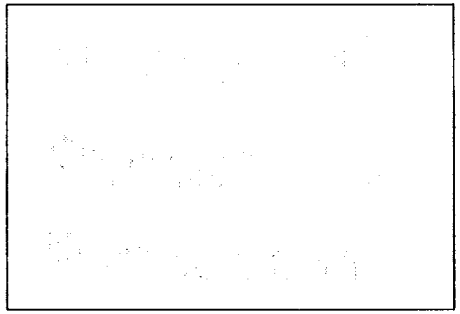
AA_S170U0



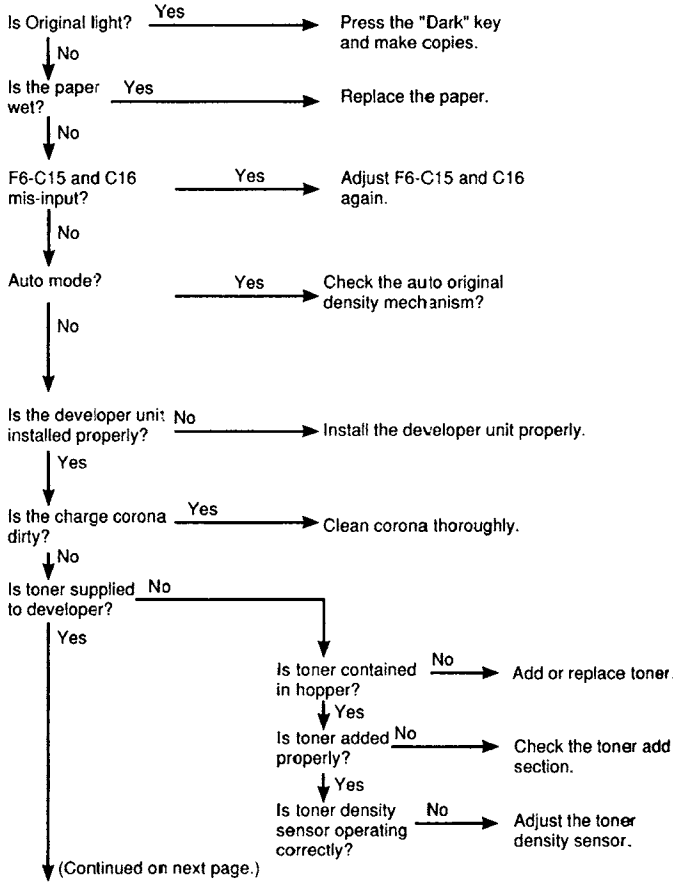
BA_171U



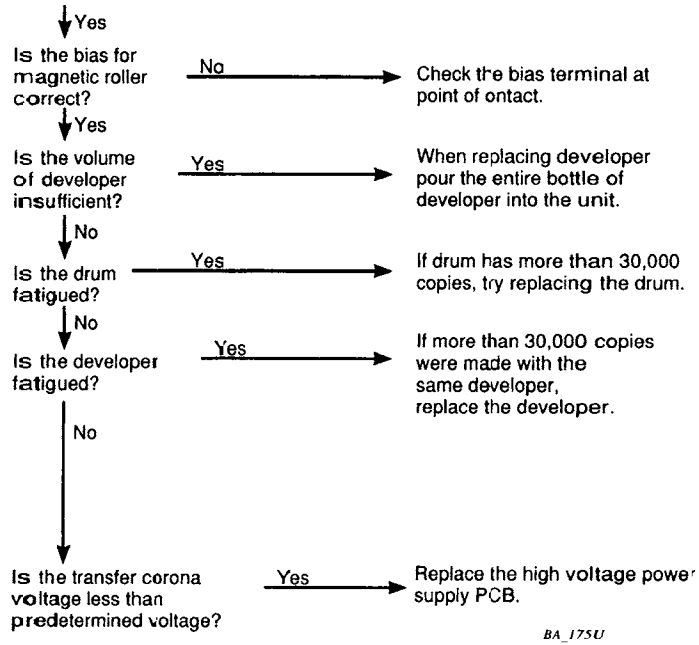
BA_172U



AA_S173U0



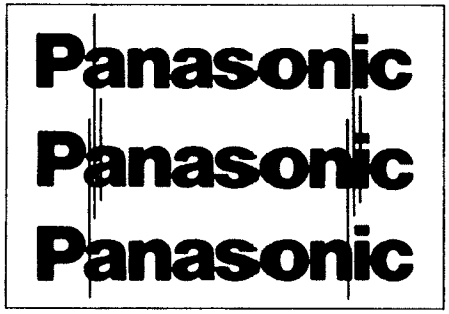
BA_173U


Yes
Is the bias for magnetic roller correct?
No
Check the bias terminal at point of ontact.
Yes
Is the volume of developer insufficient?
Yes
When replacing developer pour the entire bottle of developer into the unit.
No
Is the drum fatigued?
Yes
If drum has more than 30,000 copies, try replacing the drum.
No
Is the developer fatigued?
Yes
If more than 30,000 copies were made with the same developer, replace the developer.
No
Is the transfer corona voltage less than predetermined voltage?
Yes
Replace the high voltage power supply PCB.

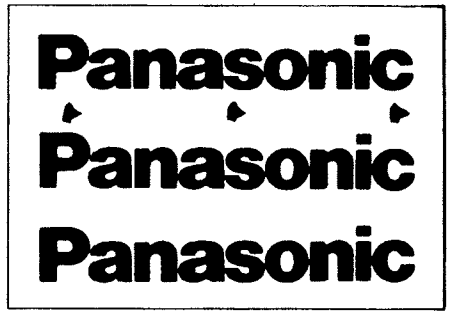
BA_175U

Troubleshooting

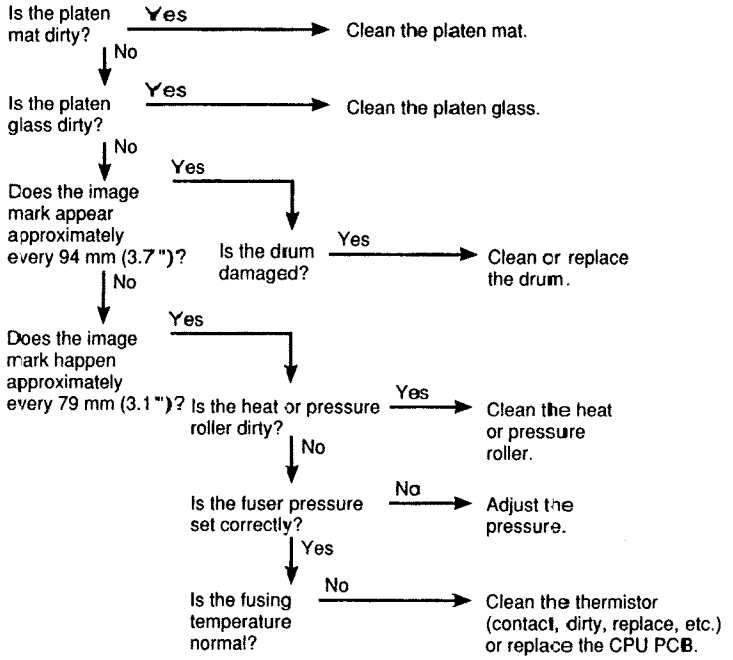
PROBLEM: MARKING ON COPY AT REGULAR INTERVALS



AA_S176U0

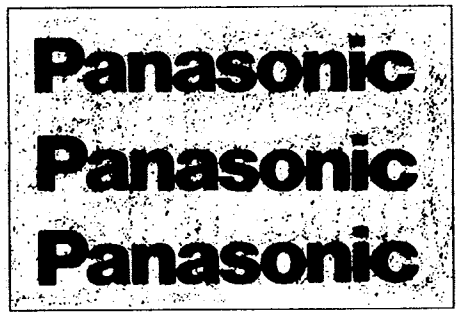


AA_S177U0

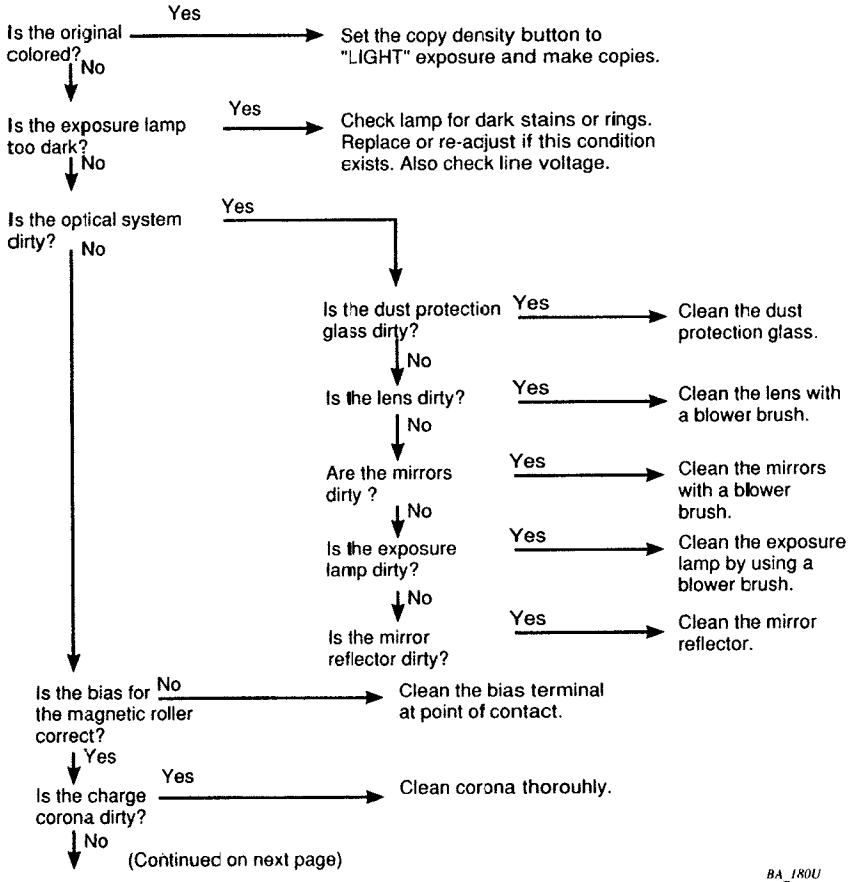


BA_176U

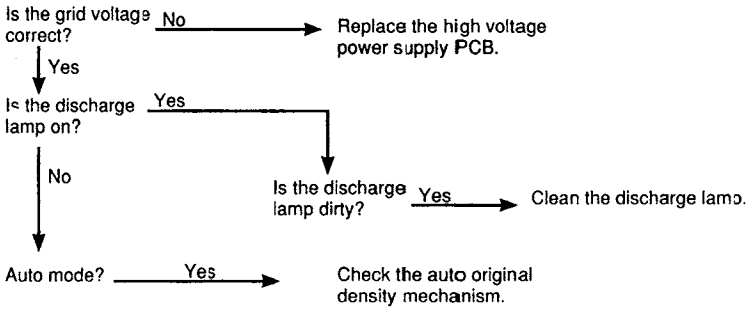
PROBLEM: BACKGROUND



AA_S179U0

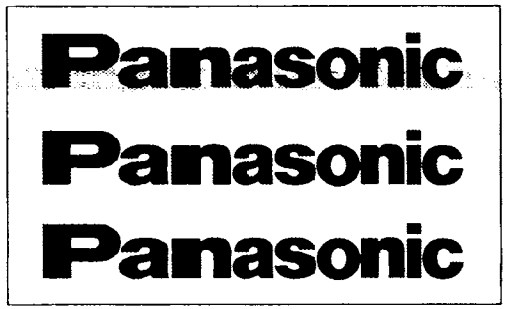


BA_180U

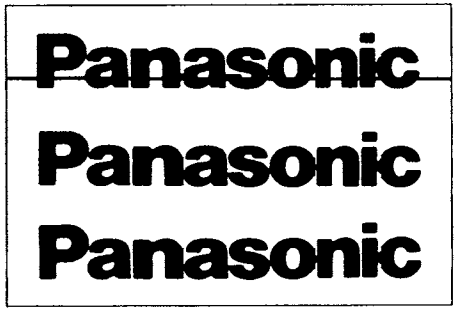


BA_181U

PROBLEM: DARK LINES IN DIRECTION OF PAPER FEED



AA_S182U0



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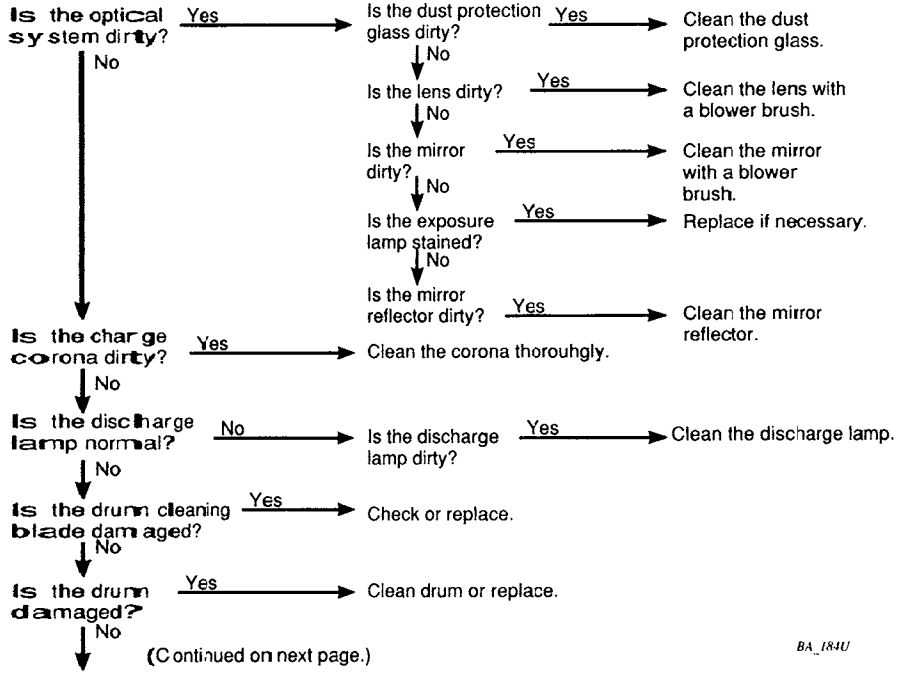
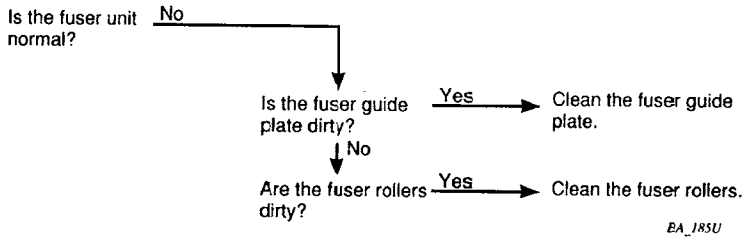
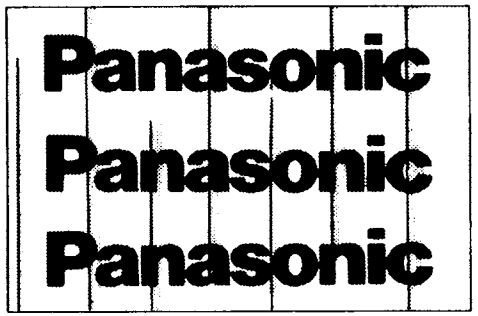


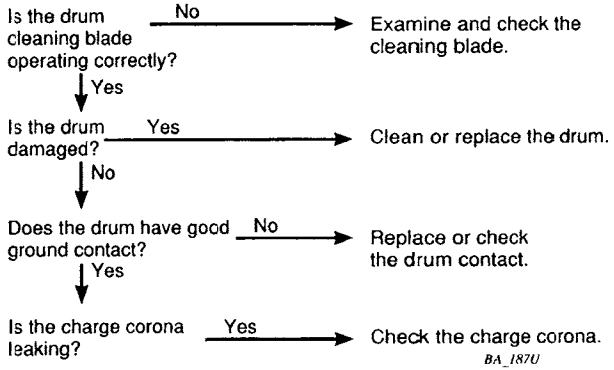
BA_184U



BA_185U

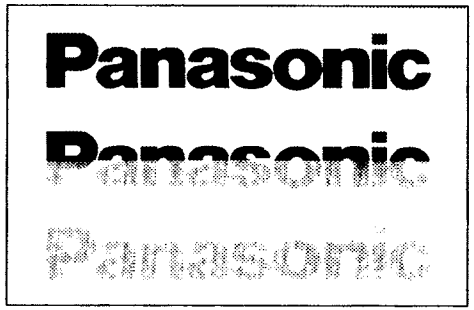


AA_S186U0

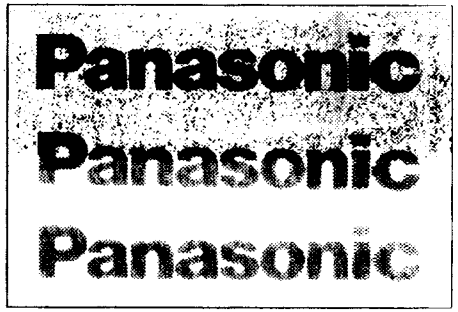


BA_187U

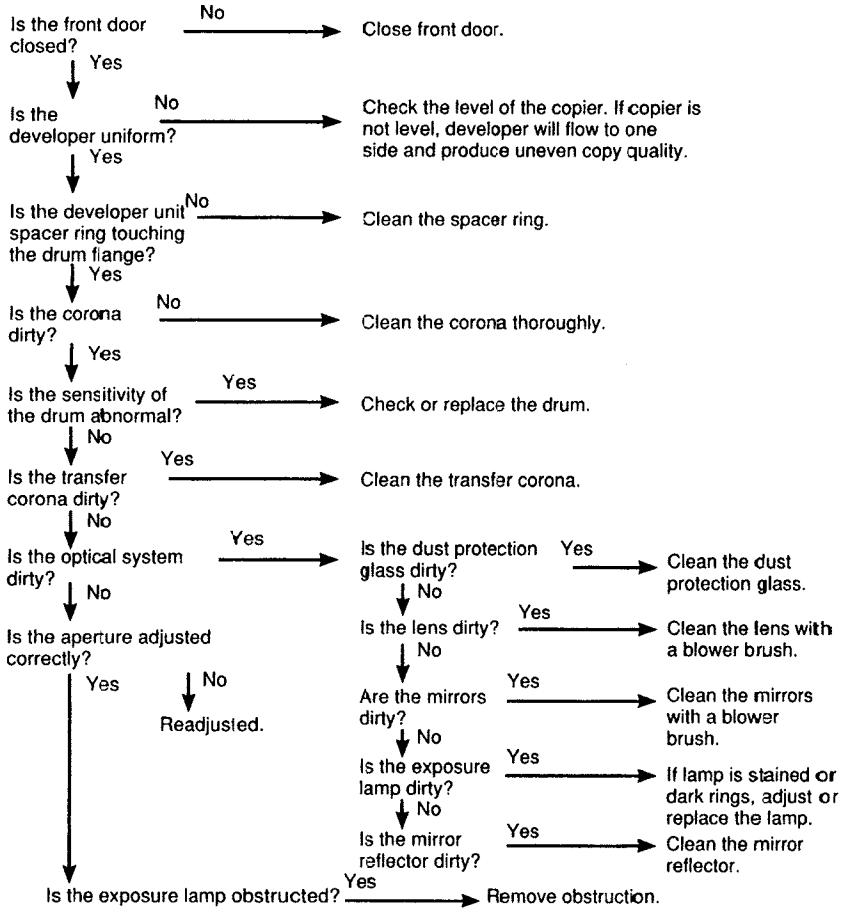
PROBLEM: VARIATION IN COPY DENSITY



AA_S188U0

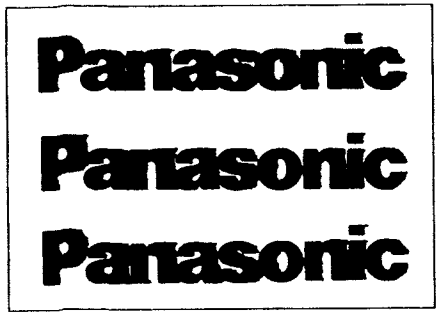


AA_S189U0

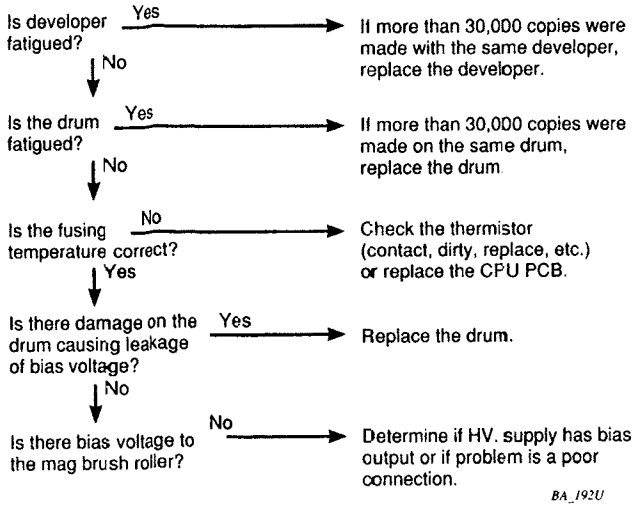


BA_190U

PROBLEM: TAILING OF IMAGE



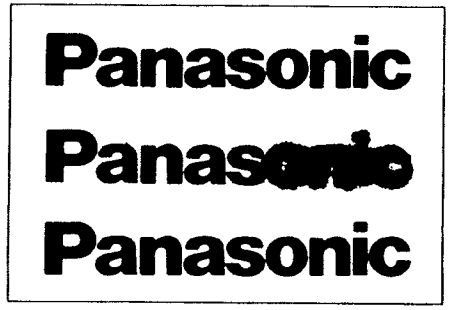
AA_S191U0


Is developer fatigued?
Yes
If more than 30,000 copies were made with the same developer, replace the developer.
No
Is the drum fatigued?
Yes
If more than 30,000 copies were made on the same drum, replace the drum.
No
Is the fusing temperature correct?
No
Check the thermistor (contact, dirty, replace, etc.) or replace the CPU PCB.
Yes
Is there damage on the drum causing leakage of bias voltage?
Yes
Replace the drum.
No
Is there bias voltage to the mag brush roller?
No
Determine if HV. supply has bias output or if problem is a poor connection.

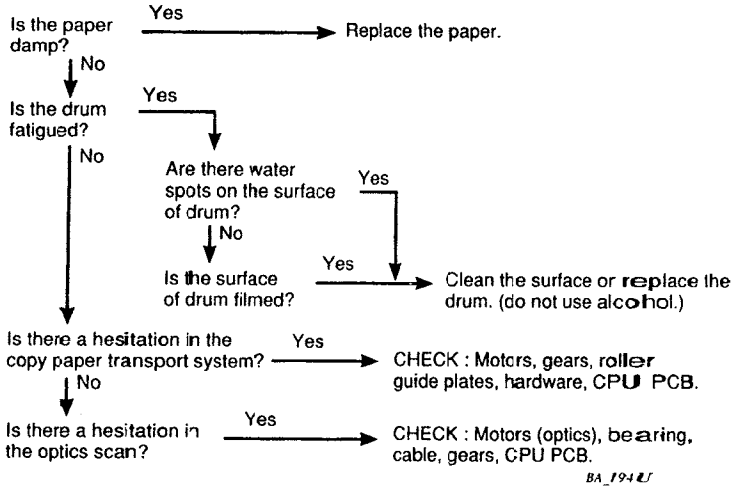
BA_192U

Troubleshooting

PROBLEM: BLURRED IMAGE

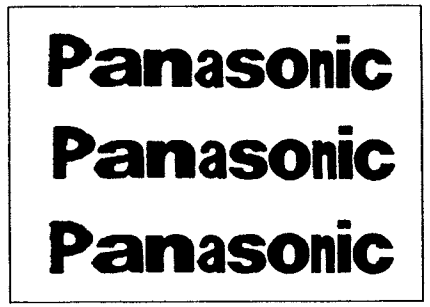


AA_S193U0

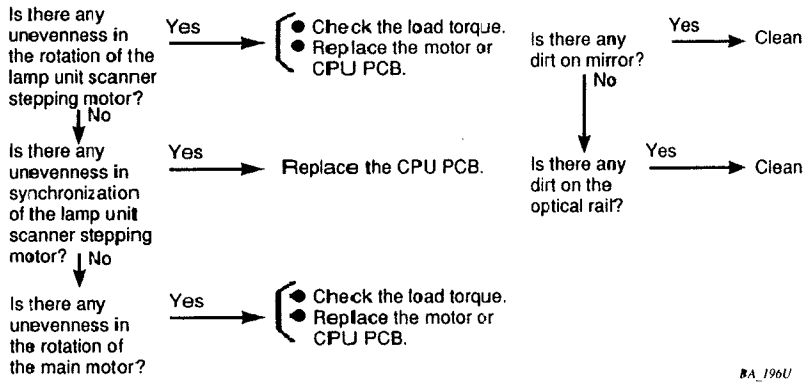

Is the paper damp?
Yes
Replace the paper.
No
Is the drum fatigued?
Yes
Are there water spots on the surface of drum?
Yes
No
Is the surface of drum filmed?
Yes
Clean the surface or replace the drum. (do not use alcohol.)
No
Is there a hesitation in the copy paper transport system?
Yes
CHECK : Motors, gears, roller guide plates, hardware, CPU PCB.
No
Is there a hesitation in the optics scan?
Yes
CHECK : Motors (optics), bearing, cable, gears, CPU PCB.

BA_194U

PROBLEM: ENLARGEMENT OR SHRINKAGE OF IMAGE (INCLUDING A DISTORTED IMAGE)

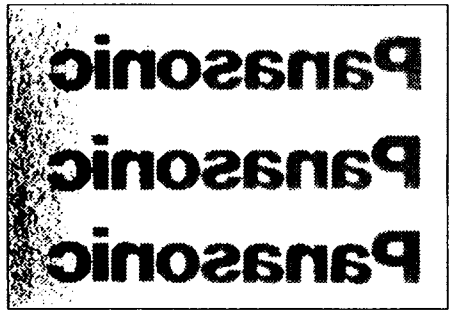


AA_S195U0

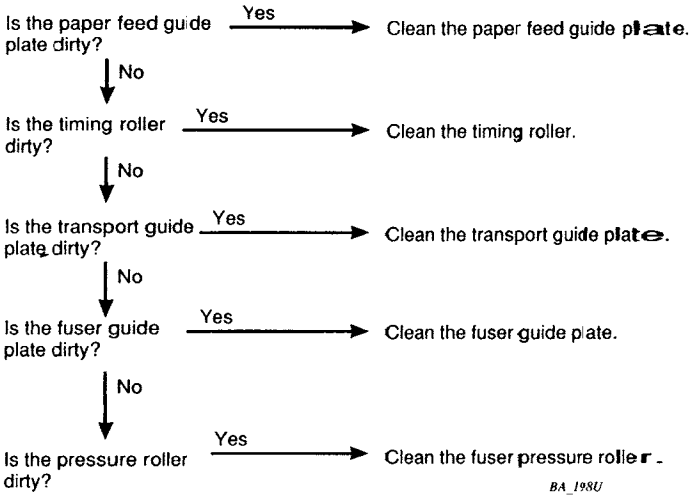

Is there any unevenness in the rotation of the lamp unit scanner stepping motor?
Yes
● Check the load torque.
● Replace the motor or CPU PCB.
No
Is there any unevenness in synchronization of the lamp unit scanner stepping motor?
Yes
Replace the CPU PCB.
No
Is there any unevenness in the rotation of the main motor?
Yes
● Check the load torque.
● Replace the motor or CPU PCB.
Is there any dirt on mirror?
Yes
Clean
No
Is there any dirt on the optical rail?
Yes
Clean

BA_196U

PROBLEM: MARKING ON BACK OF COPY

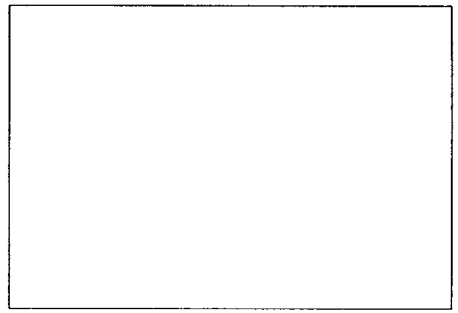


AA_S197U0

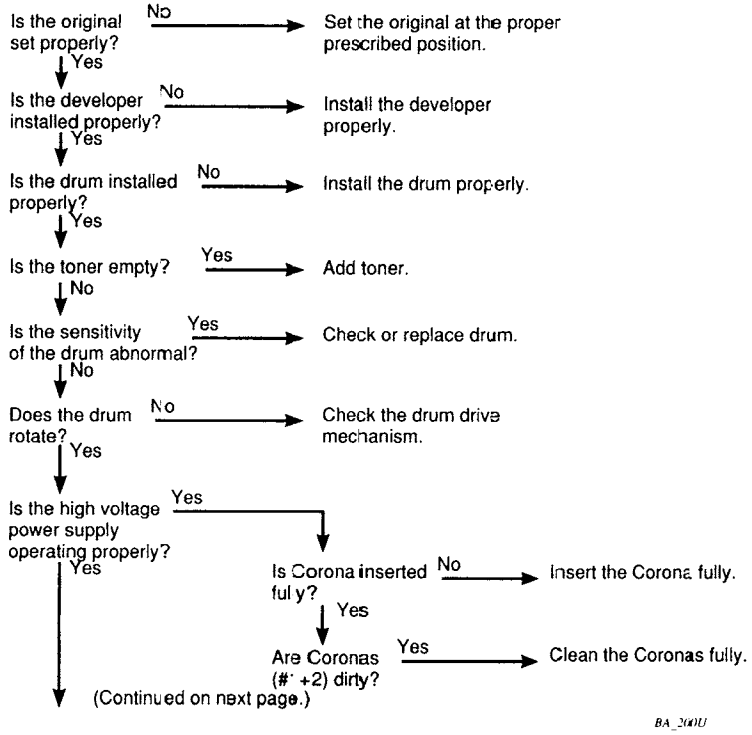


BA_198U

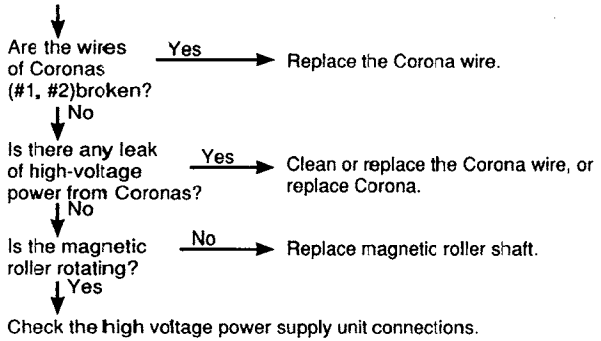
PROBLEM: WHITE COPY, NO IMAGE



AA_P199U0



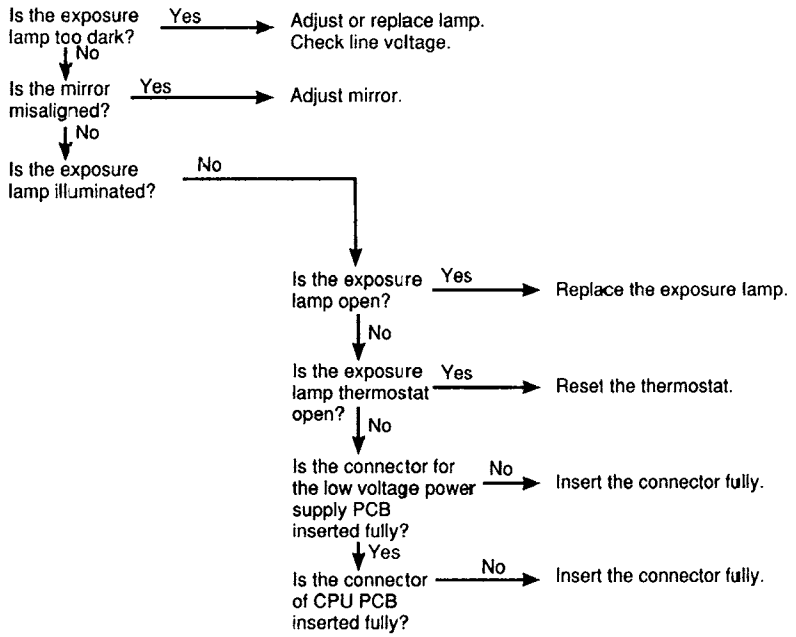
BA_200U


Are the wires of Coronas (#1, #2)broken?
Yes
Replace the Corona wire.
No
Is there any leak of high-voltage power from Coronas?
Yes
Clean or replace the Corona wire, or replace Corona.
No
Is the magnetic roller rotating?
No
Replace magnetic roller shaft.
Yes
Check the high voltage power supply unit connections.

BA_201U

PROBLEM: SOLID BLACK COPY

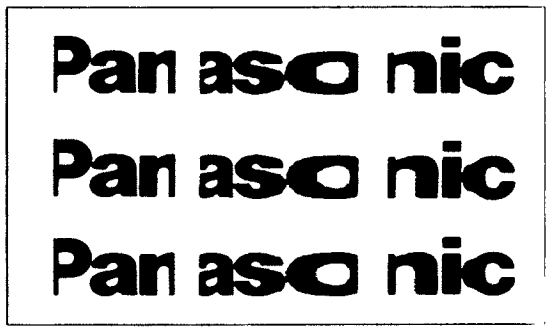
AA_P202U



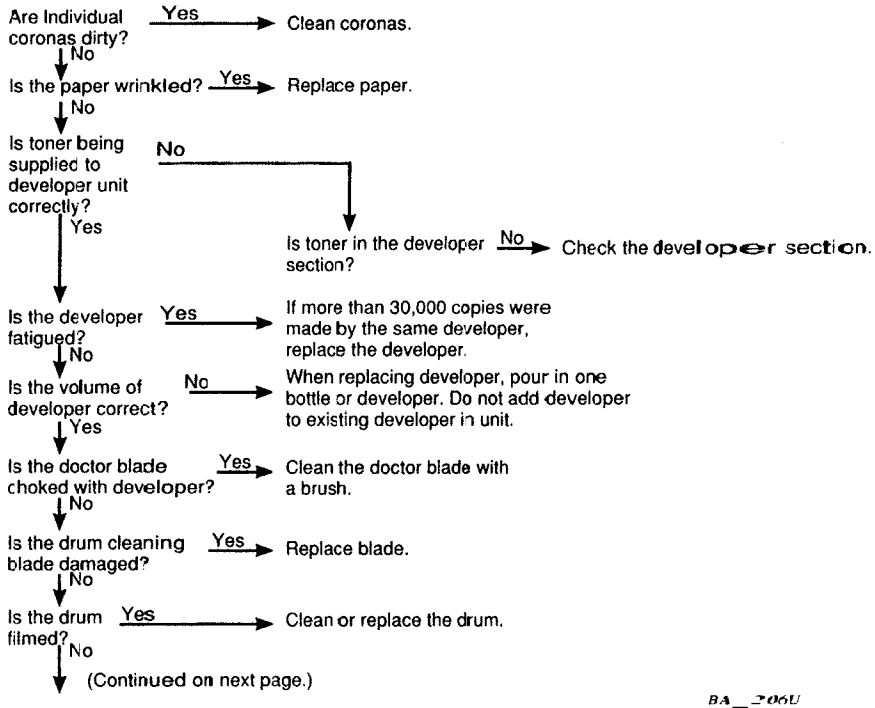
BA_203U

PROBLEM: WHITE LINES IN SOLID AREA

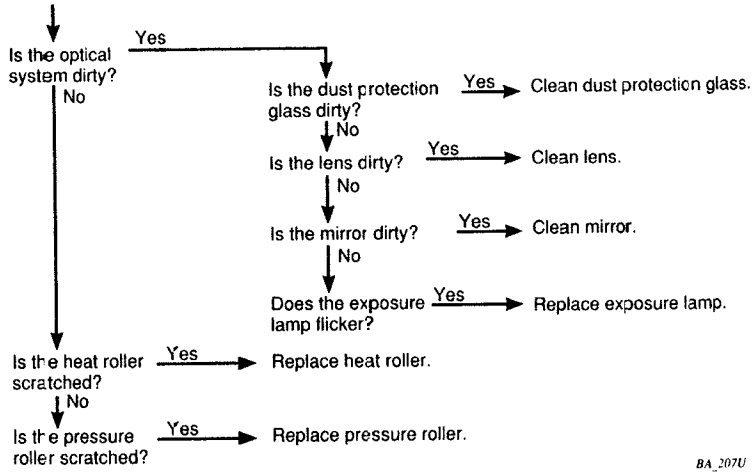
AA_S204U0



AA_S205U0



BA_206U

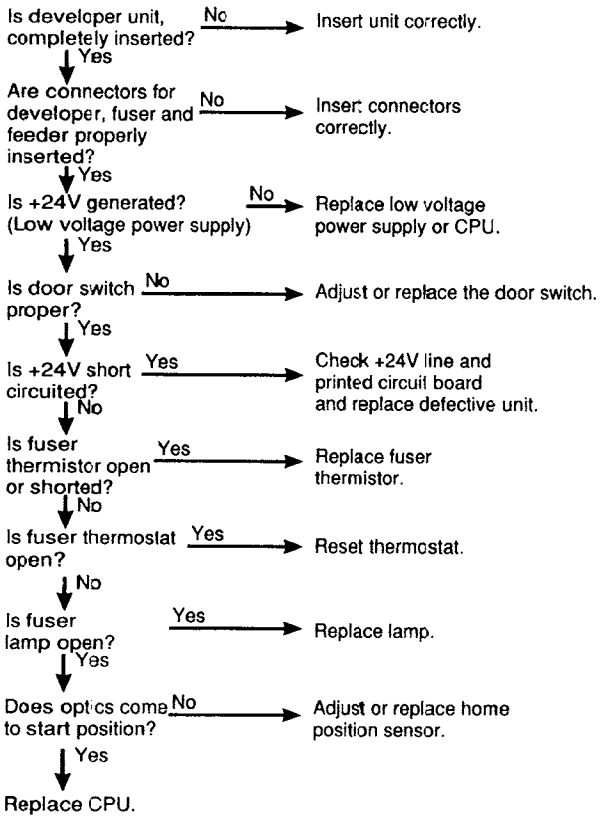


BA_207U

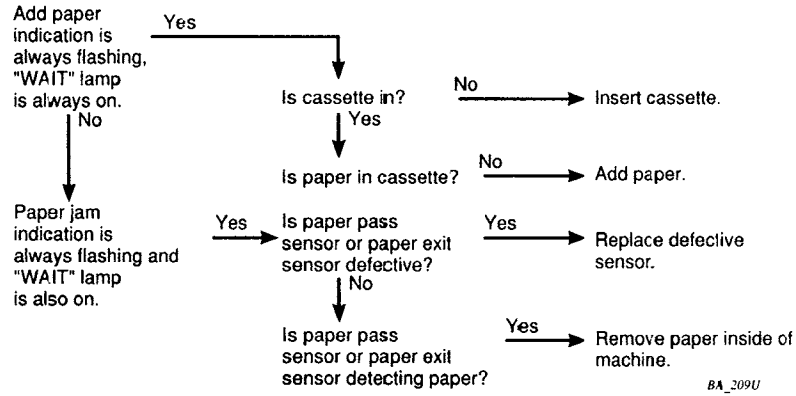
Troubleshooting

2. Other information

PROBLEM: "WAIT" LAMP ON NO COPY FUNCTION

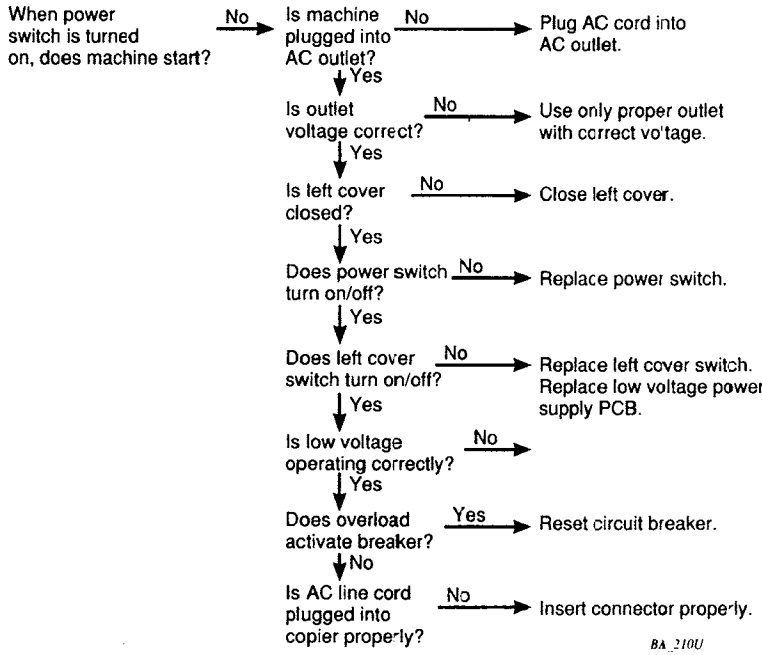


BA_208U



BA_209U

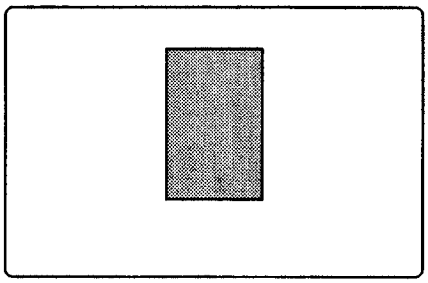
PROBLEM: MACHINE DOES NOT TURN ON



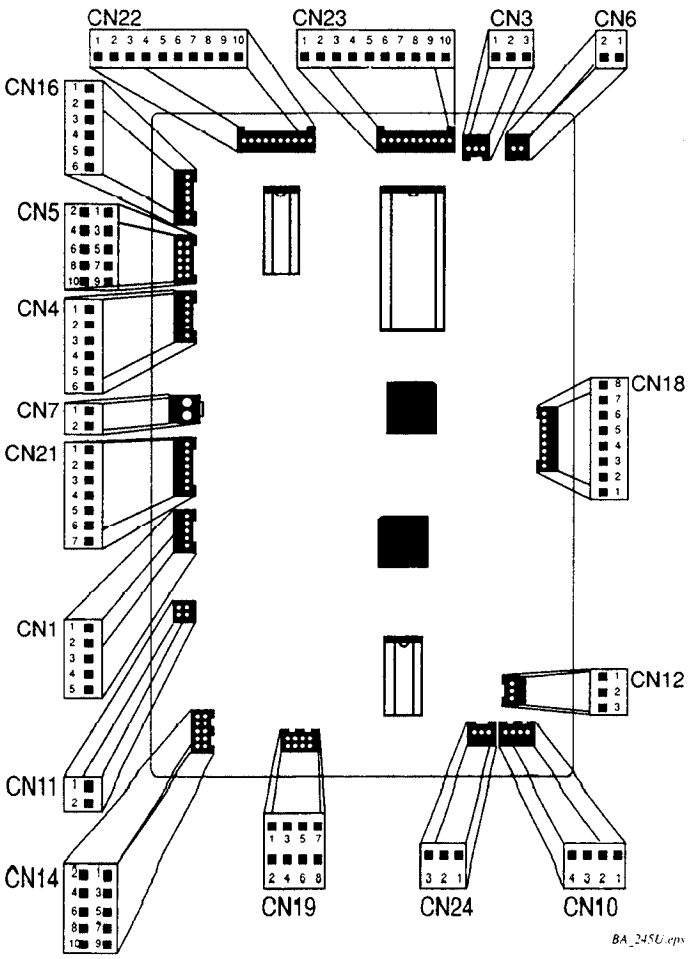
BA_210U

Troubleshooting

5.4 Troubleshooting guide
CPU PCB



Rear view



(CN1)

Pin No.	Signal Name	Destination	Status	Function
1	VO	Low voltage power supply PCB CN405-5	10V / 0V AA_P238B0	+ 10VDC power supply
2	AGND	Low voltage power supply PCB CN405-4	0V	Ground
3	VL	Low voltage power supply PCB CN405-3	5V / 0V AA_P214B0	+ 5VDC power supply
4	SGND	Low voltage power supply PCB CN405-2	0V	Signal ground
5	VCNT	Low voltage power supply PCB CN405-1	0.7V OFF ON 0.2V BA_227U	+ 24VDC ON/OFF signal

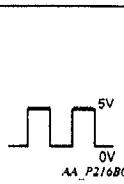
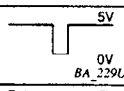
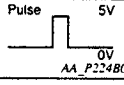
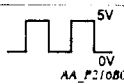
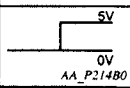
(CN3)

Pin No.	Signal Name	Destination	Status	Function
1	SGND	Blacking prevention film home position sensor CNSHPC-3, CNSHP-3	0V	Signal ground
2	SHPSN	Blacking prevention film home position sensor CNSHPC-2, CNSHP-2	5V ON 0V BA_228U	Shutter home position sensor ON/OFF signal
3	VL	Blacking prevention film home position sensor CNSHPC-1, CNSHP-1	5V / 0V AA_P214B0	+ 5VDC power supply

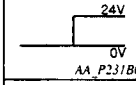
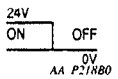
(CN4)

Pin No.	Signal Name	Destination	Status	Function
1	ACPB	Toner supply/ Blacking prevention filmmotor CNBT-6	Pulse 60V peak AA_P238B0	Toner supply/Shutter motor drive signal $\overline{A}$
2	VP	Toner supply/Blacking prevention film motor CNBT-5	24V / 0V AA_P231B0	+24VDC power supply
3	APB	Toner supply/Blacking prevention film motor CNBT-4	Pulse 60V peak AA_P238B0	Toner supply/Shutter motor drive signal A
4	BPB	Toner supply/Blacking prevention film motor CNBT-3		Toner supply/Shutter motor drive signal B
5	VP	Toner supply/Blacking prevention film motor CNBT-2	24V / 0V AA_P231B0	+24VDC power supply
6	BCPB	Toner supply/Blacking prevention film motor CNBT-1	Pulse 60V peak AA_P238B0	Toner supply/Shutter motor drive signal $\overline{B}$

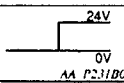
(CN5)

Pin No.	Signal Name	Destination	Status	Function
1	CPDATA	Control panel PCB CN201-1		Control panel transmission data signal
2	CPKEY	Control panel PCB CN201-2		Control panel key data signal
3	LCLK	Control panel PCB CN201-3		Control panel LED data transmission clock signal
4	CPLD	Control panel PCB CN201-4		Control panel transmission data load signal
5	CPLATCH	Control panel PCB CN201-5		Control panel transmission data latch signal
6	TED	Control panel PCB CN201-6	—	—
7	TEDP	Control panel PCB CN201-7	—	—
8	KCLK	Control panel PCB CN201-8		Control panel key data transmission clock signal
9	SGND	Control panel PCB CN201-9	0V	Signal ground
10	VL	Control panel PCB CN201-10		+5VDC power supply

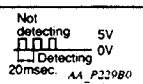
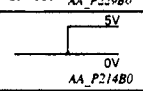
(CN6)

Pin No.	Signal Name	Destination	Status	Function
1	VP	Discharge lamp		+24VDC power supply
2	ELP			Discharge lamp ON/OFF signal

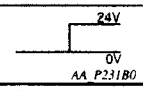
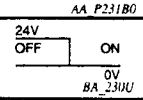
(CN7)

Pin No.	Signal Name	Destination	Status	Function
1	VP	Low voltage power supply PCB CN406-3		+24VDC power supply
2	PGND	Low voltage power supply PCB CN406-1	0V	Power ground

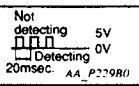
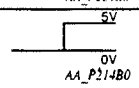
(CN10)

Pin No.	Signal Name	Destination	Status	Function
1	SGND	Paper exit sensor CNPFOC-1, CNPFO-3	0V	Signal ground
2	PFOSN	Paper exit sensor CNPFOC-2, CNPFO-2		Paper exit sensor ON/OFF signal
3	VL	Paper exit sensor CNPFOC-3, CNPFO-1		+5VDC power supply
4	—	—	—	—

(CN11)

Pin No.	Signal Name	Destination	Status	Function
1	VP	Total counter CNCT-1		+24VDC power supply
2	CT	Total counter CNCT-2		Total counter ON/OFF signal

(CN12)

Pin No.	Signal Name	Destination	Status	Function
1	SGND	Timing roller sensor CNRR-3	0V	Ground
2	RRSN	Timing roller sensor CNRR-2		Timing roller sensor ON/OFF signal
3	VL	Timing roller sensor CNRR-1		+5VDC power supply

(CN14)

Pin No.	Signal Name	Destination	Status	Function
1	MMLCK	Main motor CNMM-5	5V Normal 0V BA_231U	Main motor lock signal
2	PGND	Main motor CNMM-4	0V	Power ground
3	MMCNT	Main motor CNMM-3	5V AUS EIN 0V BA_232G	Main motor ON/OFF drive signal
4	PGND	Main motor CNMM-2	0V	Power ground
5	VP	Main motor CNMM-1	24V 0V AA_P231B0	+24VDC power supply
6	PGND	Fuser cooling fan motor CNEX-3	0V	Power ground
7	EXFLCK	Fuser cooling fan motor CNEX-2	5V Normal 0V BA_231U	Fuser cooling fan motor lock signal
8	EXFCNT	Fuser cooling fan motor CNEX-1	24V ON OFF 0V AA_P218B0	Fuser cooling fan motor ON/OFF drive signal
9	PFCR	Paper feed roller clutch CNPF-1	24V ON OFF 0V AA_P218B0	Paper feed roller clutch ON/OFF drive signal
10	VP	Paper feed roller clutch CNPF-2	24V 0V AA_P231B0	+24VDC power supply

(CN16)

Pin No.	Signal Name	Destination	Status	Function
1	SGND	Toner density sensor CNTD-1, CNTDC-1	0V	Signal ground
2	TDC	Toner density sensor CNTD-2, CNTDC-2	Analogue level 0.5 - 5.0V	Toner density sensor signal
3	VP	Toner density sensor CNTD-3, CNTDC-3	24V 0V AA_P231B0	+24VDC power supply
4	TDCNT	Toner density sensor CNTD-4, CNTDC-4	Analogue level	Toner density sensor gain control signal
5	DVE	Developer unit connector CNTD-5, 6	5V Installation 0V BA_233U	Developer unit detecting signal
6	SGND		0V	Signal ground

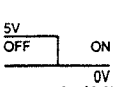
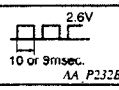
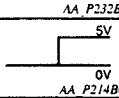
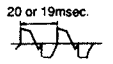
(CN18)

Pin No.	Signal Name	Destination	Status	Function
1	VP	High voltage power supply PCB CN701-1	24V 0V AA_P231B0	+24VDC power supply
2	PGND	High voltage power supply PCB CN701-2	0V	Power ground
3	HVCNT	High voltage power supply PCB CN701-3	12V ON OFF 5V BA_234U	High voltage power supply ON/OFF control signal (for Charge/Transfer corona)
4	HVLKC	High voltage power supply PCB CN701-4	Leak 0V BA_235U	Self-diagnostic input signal for high voltage leak +5V:Normal 0V:Leak
5	GRCNT	High voltage power supply PCB CN701-5	10V OFF 0V BA_236U	Grid voltage ON/OFF signal
6	GCNT	High voltage power supply PCB CN701-6	Analogue level 0.5 - 8.5V	Grid voltage control signal
7	HVBCNT	High voltage power supply PCB CN701-7	16V OFF ON 0V BA_237U	High voltage power supply ON/OFF control signal (for Developer bias/Separation corona)
8	BCNT	High voltage power supply PCB CN701-8	Analogue level 0 - 8.5V	Bias voltage control signal

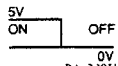
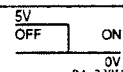
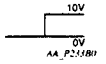
(CN19)

Pin No.	Signal Name	Destination	Status	Function
1	TH1	Fuser thermistor CNTH-1	Analogue level	Fuser thermistor terminal 1
2	TH2	Fuser thermistor CNTH-2	Analogue level	Fuser thermistor terminal 2
3	HFSOL	—	—	—
4	VP	—	—	—
5	HFCR	Sheet bypass clutch CNHF-1	24V OFF ON 0V BA_230U	Sheet bypass clutch ON/OFF signal
6	VP	Sheet bypass clutch CNHF-2	24V 0V AA_P231B0	+24VDC power supply
7	RRCR	Paper feed roller clutch CNRR-1	24V OFF ON 0V BA_230U	Timing roller clutch ON/OFF signal
8	VP	Paper feed roller clutch CNRR-2	24V 0V AA_P231B0	+24VDC power supply

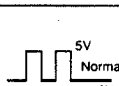
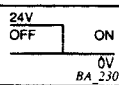
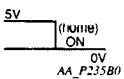
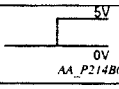
(CN21)

Pin No.	Signal Name	Destination	Status	Function
1	HTTR	Low voltage power supply PCB CN407-7		Fuser lamp ON/OFF signal
2	LPTR	Low voltage power supply PCB CN407-6		Exposure lamp ON/OFF signal
3	SGND	Low voltage power supply PCB CN407-5	0V	Signal ground
4	ZCRS	Low voltage power supply PCB CN407-4		Zero cross signal
5	VL	Low voltage power supply PCB CN407-3		+5VDC power supply
6	LFB2	Low voltage power supply PCB CN407-2		Voltage feed back 2 for exposure lamp
7	LFB1	Low voltage power supply PCB CN407-1		Voltage feed back 1 for exposure lamp

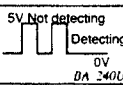
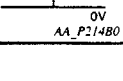
(CN22)

Pin No.	Signal Name	Destination	Status	Function
1	P50	Optics driver PCB CN651-1		Lamp unit scanner motor drive signal A
2	P52	Optics driver PCB CN651-2		Lamp unit scanner motor drive signal B
3	P51	Optics driver PCB CN651-3		Lamp unit scanner motor drive signal A
4	P53	Optics driver PCB CN651-4		Lamp unit scanner motor drive signal B
5	LMPD	Optics driver PCB CN651-5	0V: Normal	Lamp unit scanner motor power down control signal
6	SNSL	Optics driver PCB CN651-6		Full-speed unit solenoid control signal
7	H56SL	Optics driver PCB CN651-7		Half-speed unit solenoid control signal
8	AESL	Optics driver PCB CN651-8		Auto original density solenoid ON/OFF signal
9	AESN	Optics driver PCB CN651-9	Analogue level 0 - 4V	Auto original density sensor output signal
10	VO	Optics driver PCB CN651-10		+10VDC power supply

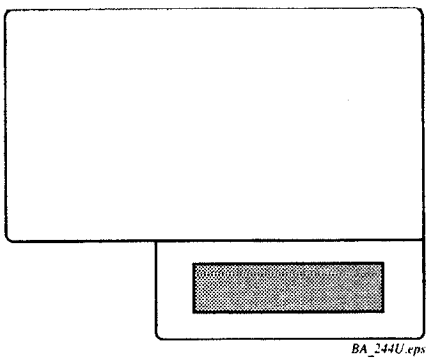
(CN23)

Pin No.	Signal Name	Destination	Status	Function
1	AGND	Optics driver PCB CN652-1	0V	Ground
2	LPFLCK 1	Optics driver PCB CN652-2		Lamp unit scanner motor lock 1 signal
3	LPFLCK 2	Optics driver PCB CN652-3		Lamp unit scanner motor lock 2 signal
4	LPFCNT	Optics driver PCB CN652-4		Optics cooling fan motor ON/OFF signal
5	56HPSN	Optics driver PCB CN652-5		No.5/6 mirror unit home position sensor ON/OFF signal
6	HPSN	Optics driver PCB CN652-6		Full-speed unit home position sensor ON/OFF signal
7	HSHPSNS	Optics driver PCB CN652-7		Half-speed unit home position sensor ON/OFF signal
8	VL	Optics driver PCB CN652-8		+5VDC power supply
9	SGND	Optics driver PCB CN652-9	0V	Signal ground
10	SGND	Optics driver PCB CN652-10	0V	Signal ground

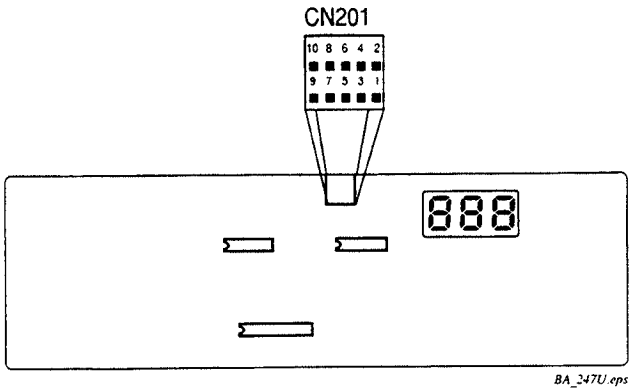
(CN24)

Pin No.	Signal Name	Destination	Status	Function
1	SGND	Sheet bypass paper pass sensor CNHFPP-1	0V	Signal ground
2	HFPPSN	Sheet bypass paper pass sensor CNHFPP-2		Sheet bypass paper pass sensor signal
3	VL	Sheet bypass paper pass sensor CNHFPP-3		+5VDC power supply

Control panel PCB



Top view



(CN201)

Pin No.	Signal Name	Destination	Status	Function
1	CPDATA	CPU PCB CN5-1		Control panel transmission data signal
2	CPKEY	CPU PCB CN5-2	5V 0V AA_P216B0	Control panel key data signal
3	LCLK	CPU PCB CN5-3		Control panel LED data transmission clock signal
4	CPLD	CPU PCB CN5-4	5V 0V BA_229U	Control panel transmission data load signal
5	CPLATCH	CPU PCB CN5-5	Pulse 5V 0V AA_P224B0	Control panel transmission data latch signal
6	TED	CPU PCB CN5-6	—	—
7	TEDP	CPU PCB CN5-7	—	—
8	KCLK	CPU PCB CN5-8	5V 0V AA_P216B0	Control panel key data transmission clock signal
9	SGND	CPU PCB CN5-9	0V	Signal ground
10	VL	CPU PCB CN5-10	5V 0V AA_P214B0	+5VDC power supply

Low voltage power supply PCB

(CN402)

Pin No.	Signal Name	Destination	Status	Function
1	AC1	Lamp unit CNLP-1	120/220-240 VAC	120/220-240 VAC power supply (Live)
2	EXLP	Lamp unit CNLP-2	67/134 VACrms (lighting) 0V 20 or 18msec. BA_241U	Exposure lamp lighting

(CN405)

Pin No.	Signal Name	Destination	Status	Function
1	VCNT	CPU PCB CN1-5	5V OFF ON 0V AA_P213B0	+24VDC ON/OFF signal
2	SGND	CPU PCB CN1-4	0V	Signal ground
3	VL	CPU PCB CN1-3	5V 0V AA_P214B0	+5VDC power supply
4	AGND	CPU PCB CN1-2	0V	Ground
5	VO	CPU PCB CN1-1	10V 0V	+10VDC power supply

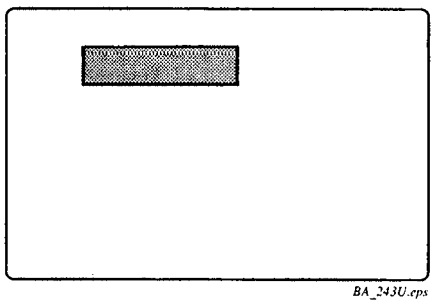
(CN406)

Pin No.	Signal Name	Destination	Status	Function
1	PGND	CPU PCB CN7-2	0V	Power ground
2	PGND	Optics driver PCB CN653-2	0V	Power ground
3	VP	CPU PCB CN7-1	24V 0V AA_P231B0	+24VDC power supply
4	VP	Optics driver PCB CN653-1	24V 0V AA_P231B0	+24VDC power supply

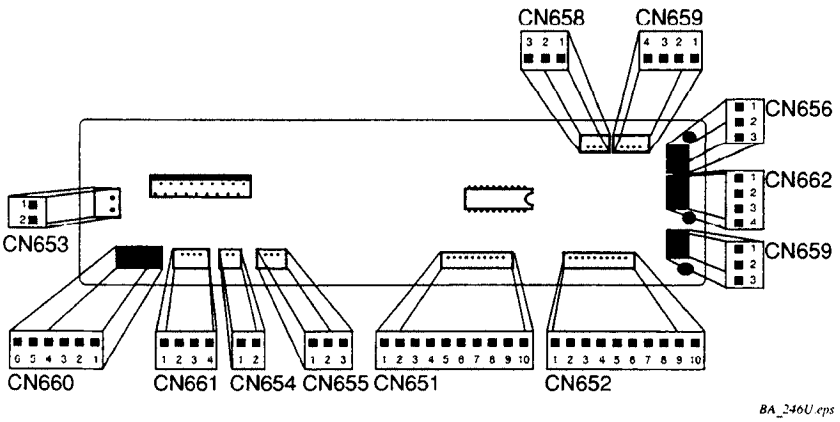
(CN407)

Pin No.	Signal Name	Destination	Status	Function
1	LFB1	CPU PCB CN21-7	20 or 19msec. AA_P234B0	Voltage feed back 1 for exposure lamp
2	LFB2	CPU PCB CN21-6		Voltage feed back 2 for exposure lamp
3	VL	CPU PCB CN21-5	5V 0V AA_P214B0	+5VDC power supply
4	ZCRS	CPU PCB CN21-4	2.6V 10 or 9msec. AA_P232B0	Zero cross signal
5	SGND	CPU PCB CN21-3	0V	Ground
6	LPTR	CPU PCB CN21-2	5V OFF ON 0V BA_238U	Exposure lamp ON/OFF signal
7	HTTR	CPU PCB CN21-1		Fuser lamp ON/OFF signal

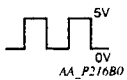
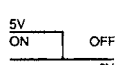
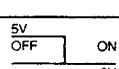
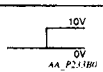
Optics driver PCB



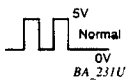
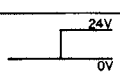
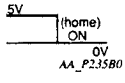
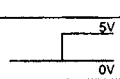
Rear view



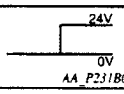
(CN651)

Pin No.	Signal Name	Destination	Status	Function
1	P50	CPU PCB CN22-1		Lamp unit scanner motor drive signal A
2	P52	CPU PCB CN22-2		Lamp unit scanner motor drive signal B
3	P51	CPU PCB CN22-3		Lamp unit scanner motor drive signal A
4	P53	CPU PCB CN22-4		Lamp unit scanner motor drive signal B
5	LMPD	CPU PCB CN22-5	0V: Normal	Lamp unit scanner motor power down control signal
6	SNSL	CPU PCB CN22-6		Full-speed unit solenoid control signal
7	H56SL	CPU PCB CN22-7		Half-speed unit solenoid control signal
8	AESL	CPU PCB CN22-8		Auto original density solenoid ON/OFF signal
9	AESN	CPU PCB CN22-9	Analogue level 0 - 4V	Auto original density sensor output signal
10	VO	CPU PCB CN22-10		+10VDC power supply

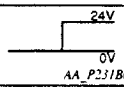
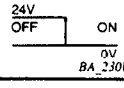
(CN652)

Pin No.	Signal Name	Destination	Status	Function
1	AGND	CPU PCB CN23-1	0V	Ground
2	LPFLCK 2	CPU PCB CN23-2		Lamp unit scanner motor lock 2 signal
3	LPFLCK 1	CPU PCB CN23-3		Lamp unit scanner motor lock 1 signal
4	LPFCNT	CPU PCB CN23-4		Optics cooling fan motor ON/OFF signal
5	56HPSN	CPU PCB CN23-5		No.5/6 mirror unit home position sensor ON/OFF signal
6	HPSN	CPU PCB CN23-6		Full-speed unit home position sensor ON/OFF signal
7	HSHPSN	CPU PCB CN23-7		Half-speed unit home position sensor ON/OFF signal
8	VL	CPU PCB CN23-8		+5VDC power supply
9	SGND	CPU PCB CN23-9	0V	Signal ground
10	SGND	CPU PCB CN23-10	0V	Signal ground

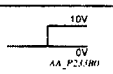
(CN653)

Pin No.	Signal Name	Destination	Status	Function
1	VP	Low voltage power supply PCB CN406-4		+24VDC power supply
2	PGND	Low voltage power supply PCB CN406-2	0V	Power ground

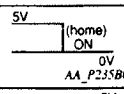
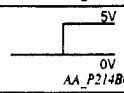
(CN654)

Pin No.	Signal Name	Destination	Status	Function
1	VP	Auto density solenoid CNAES-1		+24VDC power supply
2	AESOL	Auto density solenoid CNAES-2		Auto original density solenoid ON/OFF signal

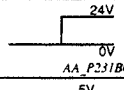
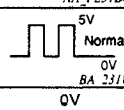
(CN655)

Pin No.	Signal Name	Destination	Status	Function
1	AESNS	Auto density sensor CNAE-3	Analogue level 0 - 4V	Auto original density sensor output signal
2	AGND	Auto density sensor CNAE-2	0V	Ground
3	VO	Auto density sensor CNAE-1		+10VDC power supply

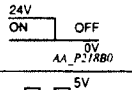
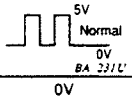
(CN656)

Pin No.	Signal Name	Destination	Status	Function
1	SGND	Full-speed unit home position sensor CNHP-3	0V	Signal ground
2	HPSN	Full-speed unit home position sensor CNHP-2		Full-speed unit home position sensor ON/OFF signal
3	VL	Full-speed unit home position sensor CNHP-1		+5VDC power supply

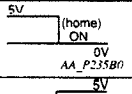
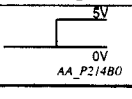
(CN657)

Pin No.	Signal Name	Destination	Status	Function
1	—	—	—	—
2	LPFCNT 2	Optics cooling fan motor 2 CNLPF2-1		Optrics cooling fan motor 2 ON/OFF drive signal
3	LPFLCK 2	Optics cooling fan motor 2 CNLPF2-2		Optics cooling fan motor 2 lock signal
4	PGND	Optics cooling fan motor 2 CNLPF2-3	0V	Power ground

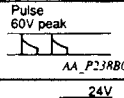
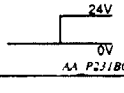
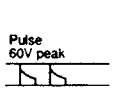
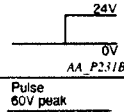
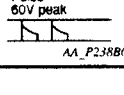
(CN658)

Pin No.	Signal Name	Destination	Status	Function
1	LPFCNT 1	Optics cooling fan motor 1 CNLPF1-1		Optrics cooling fan motor 1 ON/OFF drive signal
2	LPFLCK 1	Optics cooling fan motor 1 CNLPF1-2		Optics cooling fan motor 1 lock signal
3	PGND	Optics cooling fan motor 1 CNLPF1-3	0V	Power ground

(CN659)

Pin No.	Signal Name	Destination	Status	SignalFunction
1	SGND	No.5/6 mirror unit home position sensor CN56HP-3	0V	Signal ground
2	56HPSN	No.5/6 mirror unit home position sensor CN56HP-2		No.5/6 mirror unit home position sensor ON/OFF signal
3	VL	No.5/6 mirror unit home position sensor CN56HP-1		+5VDC power supply

(CN660)

Pin No.	Signal Name	Destination	Status	Function1
1	BCP	Lamp unit scanner motor CNLM-6		Lampunit scanner motor drive signal B
2	VP	Lamp unit scanner motor CNLM-5		+24VDC power supply!
3	BP	Lamp unit scanner motor CNLM-4		Lampunit scanner motor drive signal B
4	ACP	Lamp unit scanner motor CNLM-3		Lampunit scanner motor drive signal A
5	VP	Lamp unit scanner motor CNLM-2		+24VDC power supply!
6	AP	Lamp unit scanner motor CNLM-1		Lampunit scanner motor drive signal A

(CN661)

Pin No.	Signal Name	Destination	Status	Function1
1	VP	Full-speed unit solenoid CNSN-1	24V / 0V AA_P231B0	+24VDC power supply
2	SNSOL	Full-speed unit solenoid CNSN-2	24V OFF / ON / 0V BA_230U	Full-speed unit solenoid drive signal
3	VP	Half-speed unit solenoid CN5/6S-1	24V OFF / ON / 0V BA_230U	+24VDC power supply
4	H56SOL	Half-speed unit solenoid CN5/6S-2	24V OFF / ON / 0V BA_230U	Half-speed unit solenoid drive signal

(CN662)

Pin No.	Signal Name	Destination	Status	Function1
1	SGND	Half-speed unit home position sensor CNHSH-3	0V	Signal ground
2	HSHPSN	Half-speed unit home position sensor CNHSH-2	5V (home) ON / 0V AA_P235B0	Half-speed unit home position sensor ON/OFF signal
3	VL	Half-speed unit home position sensor CNHSH-1	5V / 0V AA_P214B0	+5VDC power supply

High voltage power supply PCB (CN701)

Pin No.	Signal Name	Destination	Status	Function1
1	VP	CPU PCB CN18-1	24V / 0V AA_P231B0	+24VDC power supplyl
2	PGND	CPU PCB CN18-2	0V	Power ground
3	HVCNT	CPU PCB CN18-3	24V ON / OFF / 0V AA_P218B0	High voltage power supply ON/OFF control signal (for Charge/Transfer vorna)
4	HVLKC	CPU PCB CN18-4	Leak / 0V BA_235U	Self-diagnostic input signal for high voltage leak +5V:Normal 0V: Leak
5	GRCNT	CPU PCB CN18-5	10V OFF / 0V BA_236U	Grid voltage ON/OFF signal
6	GCNT	CPU PCB CN18-6	Analogue level 0.5 - 8.5V	Grid voltage control signal
7	HVBCNT	CPU PCB CN18-7	16V OFF / ON / 0V BA_237U	High voltage power supply ON/OFF control signal (for Developer bias/Separation corona)
8	BCNT	CPU PCB CN18-8	Analogue level 0 - 8.5V	Bias voltage control signal

Section VI
Unpacking/Installation

6.1 Installation requirements

The copier is a precision piece of equipment, and its performance depends somewhat on the surrounding conditions. Attention to the following remarks will result in improved reliability and quality performance.

1. The FP-7113 should not be installed into areas with the following conditions:
   (1) Extremely high or low temperature and humidity.
   (Ambient conditions = Temperature:50°F to 86°F/10°C to 30°C, Relative humidity: 30% to 80%)
   (2) Area where temperature and humidity can change rapidly.
   (3) Direct exposure to sunlight.
   (4) In areas of high dust concentration.
   (5) In areas of poor ventilation.
   (6) In areas with chemical fume concentration.
   (7) In areas with extreme vibration.
   (8) Directly in air conditioning flow.
2. The FP-7113 weights approx.72.6 lbs/33 kg (without optional accessories). Use the proper stand for installation.
3. A properly wired, dedicated, 12A 120V AC/6.5A 220/240V AC outlet is required. (do not use an extension cord.)
4. The figure below illustrates the space requirements needed for installation.
5. Make sure the copier is properly leveled from left to right and from front to rear (use small carpenter level).
6. The mains plug on this equipment must be used to disconnect mains power. Please ensure that the socket outlet is installed near the equipment and shall be easily accessible.

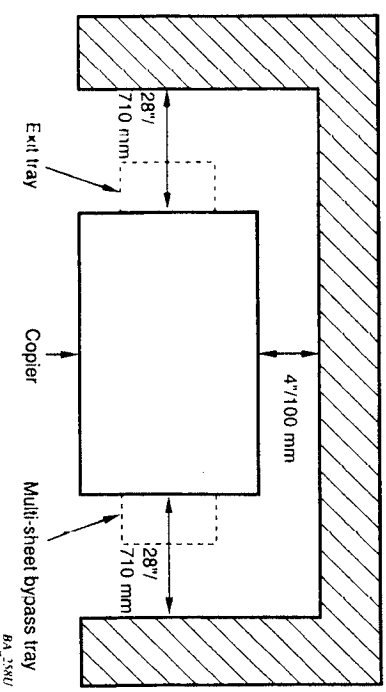


Figure 6-1-1

6.2 Unpacking

Check the condition and contents of the box for any shipping damage and completeness before installation. (Visual check)

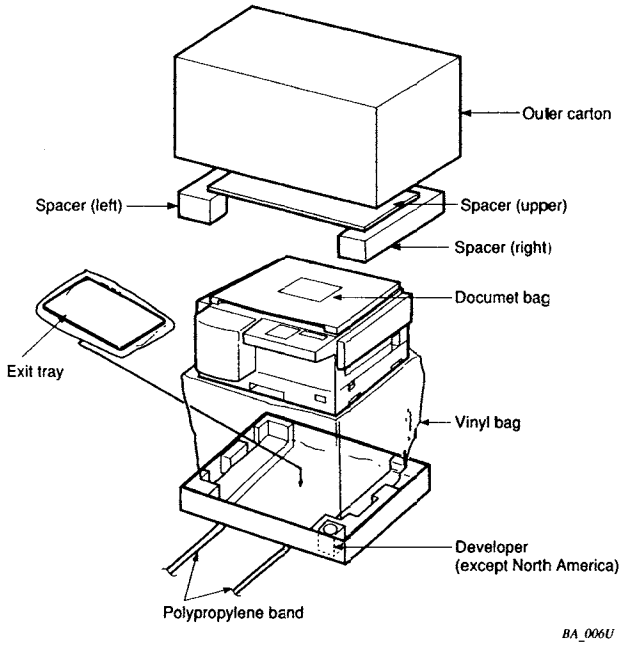


Figure 6-2-1

1. Remove the polypropylene bands.
2. Remove the outer carton.
3. Remove the spacers (upper, right and left).
4. Open the vinyl bag.
5. Take out the document bag.
6. Lift the copier and place it on its copier cabinet.
7. Take out the exit tray.
8. Take out the developer bottle (for European version).

- Check the contents of the box.

	Contents	Check
1	Copier (X1)	
2	Exit tray (X1)	
3	Document bag	
4	Developer (except North America)	

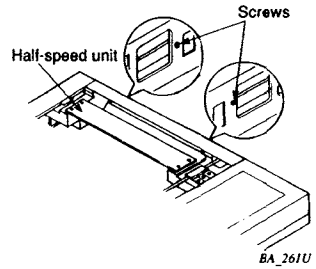
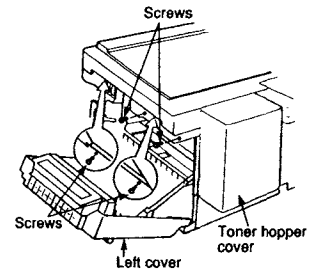
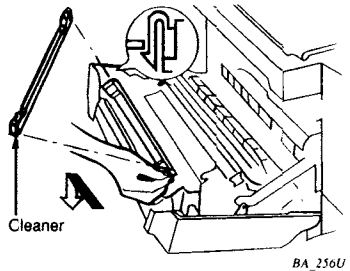
6.3 Installation procedure

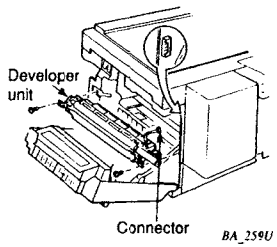
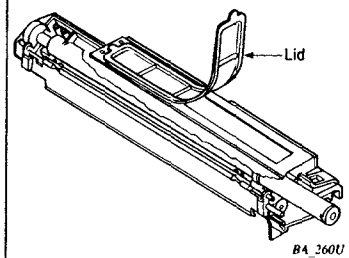
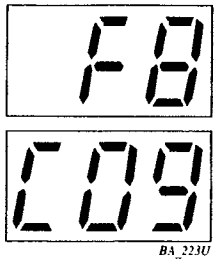
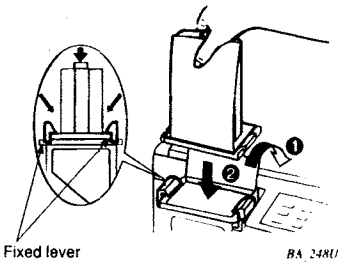
1. Installation

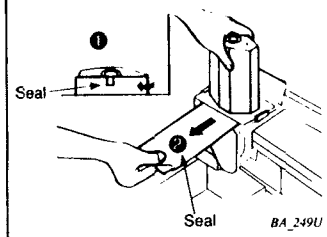
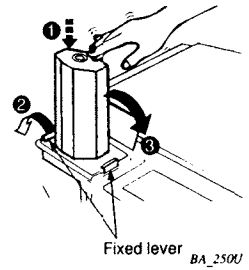
Remove the following shipping materials before installation.

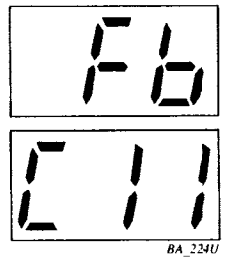
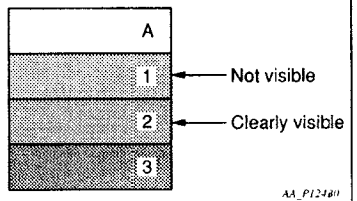
Note: Save the shipping materials for future use (transport of copier).

Caution: Make sure the copier is unplugged before installation.

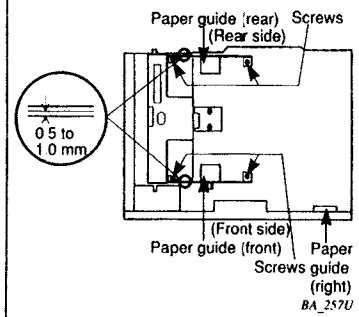
	REFERENCES	PROCEDURE	CHECK
Optics unit	 	• Remove the external packing/protection materials. • Remove the shipping tape from the copier. • Remove the right cover (2 screws). • Remove the half-speed unit shipping screws (2 screws). • Re-install the right cover. • Open the toner hopper cover. • Open the left cover. • Remove the full-speed unit shipping screws (2 screws). • Remove the shipping screws (2 screws).	
Fuser unit		• Install the heat roller cleaner.	

	REFERENCES	PROCEDURE	CHECK
Add developer	 BA_259U  BA_260U	• Disconnect the developer unit connector. • Remove the developer unit (2 screws). **Caution:** When handling the developer unit (removing/installing(, pay close attention to the "CAUTION" label on the drum protection cover. • Remove the developer unit lid. • Shake developer bottle 10 to 15 times. • Pour the developer into the unit evenly. • Re-install the developer unit lid.	
Automatic TDC sensor gain adjustment	 BA_223U	• Press the PAPER TRAY, ZOOM DOWN and 1 DIGIT keys to enter the F mode. • Re-install the developer unit. • Set the F8-C09. • Press PRINT key for automatic TDC sensor gain adjustment . (Wait approximately 2 minutes until the adjustment cycle stops.) • Write the contents of F6-C21 and C26 to the memory sheet. • Press the PAPER TRAY, ZOOM DOWN and CLEAR/STOP keys to escape from the F mode.	
Add toner	 BA_248U	• Open the toner hopper unit cover. • Shake toner cartridge 10 to 15 times. • Position the toner cartridge to fixed lever and push down the cartridge until it clicks.	

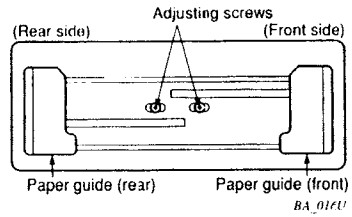
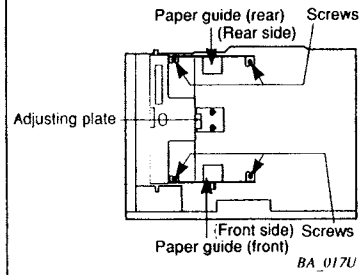
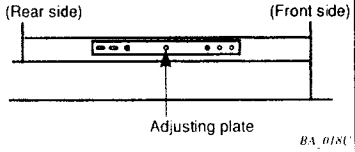
	REFERENCES	PROCEDURE	CHECK
Add toner	 BA_249U  BA_250U	• Pull off the seal. • Gently pull out the seal. • Tap the toner cartridge. • Pull the fixed lever and remove the toner cartridge. • Install the waste toner bottle.	

Exposure standard adjustment	 BA_224U
	  AA_P12480
		• Enter the F6 mode.
		• Confirm F6-C61 is 0, and change if necessary.
		• Enter the F2 mode and set the exposure to the center position in the DOCUMENT mode.
		• Make a copy of Test Chart #53/#54 with Gray Scale (P/N FQ-SJ101).
		  • Gray Scale 1 should not be visible.
		  • Gray Scale 2 should be clearly visible.
		• F6-11 adjustment.
		Note: If the density is light, (-) direction = density darker.
		If the density is dark, (+) direction = density lighter.
		• Repeat each steps until the proper density is attained.	

Unpacking/ Installation

	REFERENCES	PROCEDURE	CHECK
Paper size setting		• Remove the paper guides (front/rear) (2 screws each). • Remove the paper guide (right) (1 screw). • Position the paper guides (front/rear/right) to the paper size required. **Note:** When the paper guides (front/rear) are installed, the gap (allowance) between the paper guides (front/rear) and the paper should be 0.5 mm to 1.0 mm. • Remove the paper size indicator plate, and position the paper size plate to the paper size required.	

2. Adjustment (Side to Side)

	REFERENCES	PROCEDURE	CHECK
Sheet bypass		• Loosen adjusting screws (2 screws). • Move the entire tray to the front or rear accordingly.	
Cassette		• Pull the paper tray out fully. • Loosen paper guide (fronr/rear) mounting screws (2 screws each). • Loosen adjusting plate mounting screws (2 screws). • Move the entire agjusting plate to the front or rear accordingly.	
Glass holder (left)		This adjustment should only be performed when absolutely necessary. This adjustment should be previously checked at cassette and sheet bypass. • Remove the glass holder (left) (3 screws). • Loosen adjusting plate screws (2 screws), and adjust the position of the glas holder (left) and adjusting plate together.	

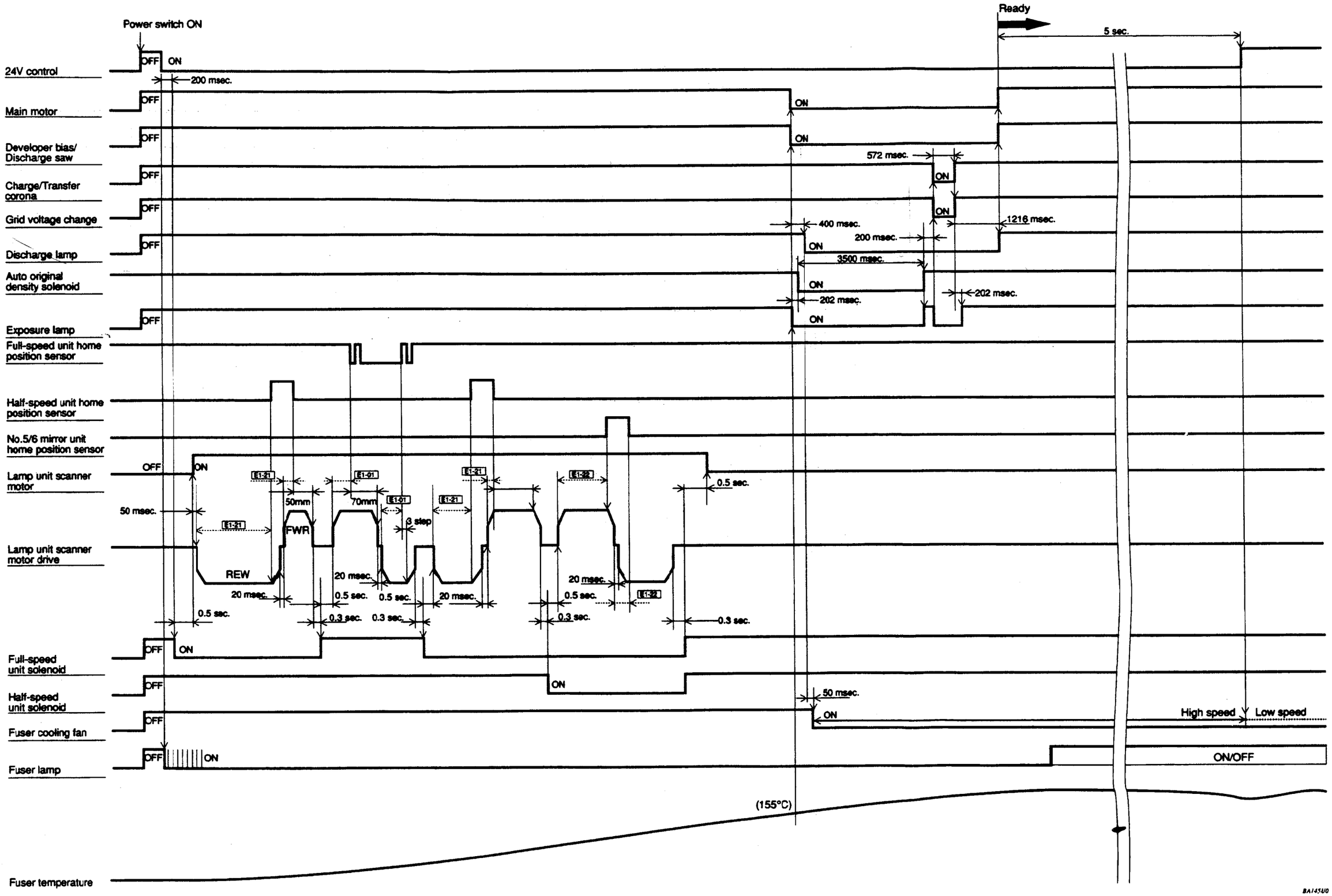
Unpacking/ Installation

3. Check

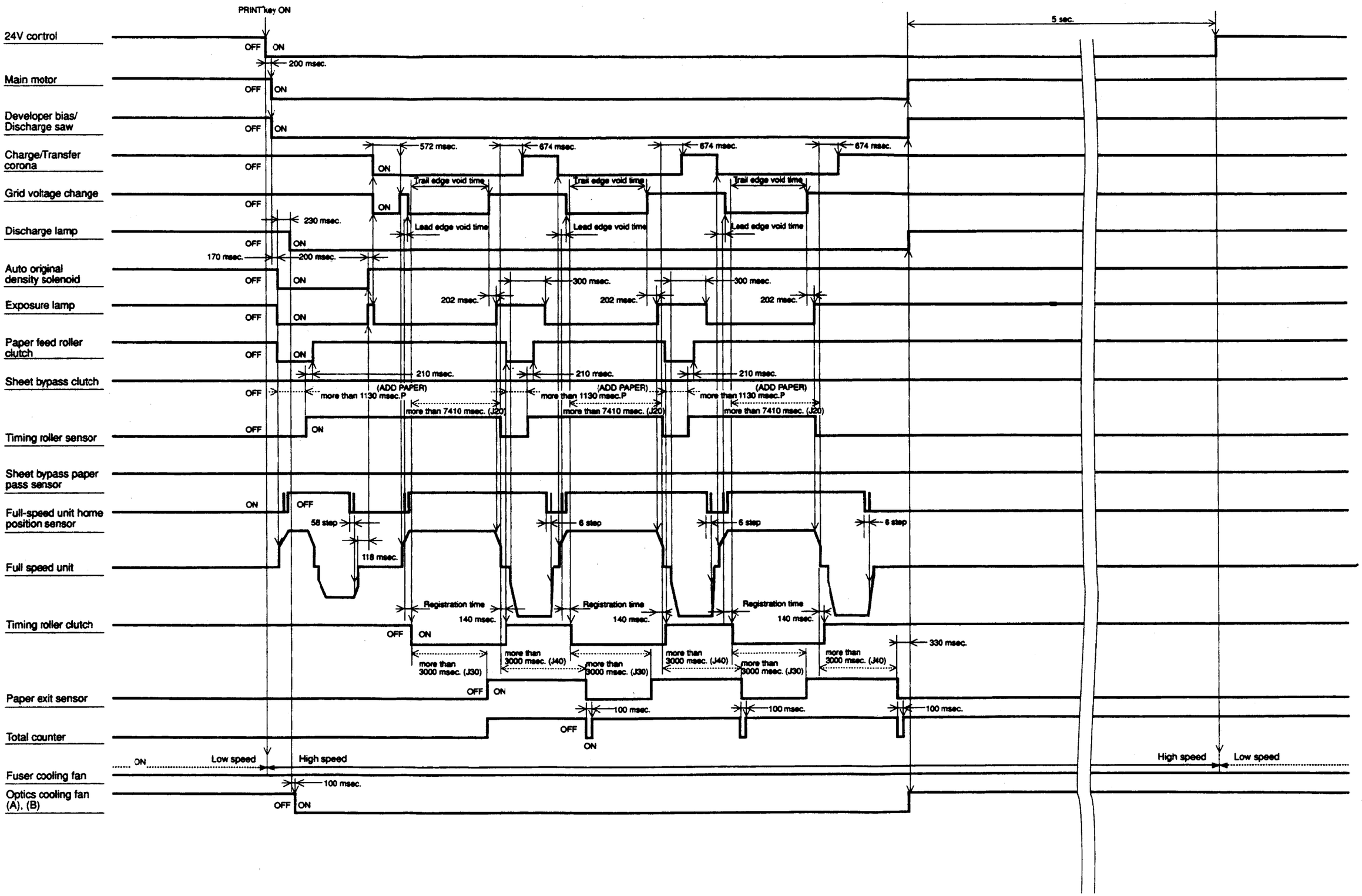
1) Check exposure, and press COPY RATIO SELECT key to confirm a change of copy ratio. Check for proper display indications.
2) Check copy paper size, and copies selected, for proper display indications.
3) Process 10 copies of Panasonic Test Chart #53 or #54, each size available for:
   a. Registration.
   b. 4.5 Resolution.
   c. Gray Scale.
   d. Acceptable Solid Fill.
   e. Acceptable Background.
   f. Copy Uniformity.
   g. Fusing.
   h. Varied "Exposure".
   i. "Clear/Stop" key operation.
4) Press "Up" and "Down" keys to confirm a change of ratio.
5) Make 5 copies at each Reduction and Enlargement ratio, checking each copy set for:
   a. Density.
   b. Background.
   c. Copy size.
6) Select reduction or enlargement mode, and 99 copies desired, after 60 seconds both should reset to normal.
7) Install paper in the multi sheet by-pass, select 5 copies and press the PRINT key. After one sheet has fed, hold the paper in the multi-sheet bypass tray so it cannot feed. The copier should indicate a "Jam" condition.
   Remove the jammed sheet and open the left cover, then close, and confirm the PAPER JAM indicator has reset. Next, press the PRINT key. As the third sheet feeds, hold the next sheet so it cannot feed. The copier should indicator a "Jam" condition. Open the left cover and remove the jammed sheet, close the left cover, and confirm that the PAPER JAM indicator has reset.

4.4 Timing chart

1. Power switch ON

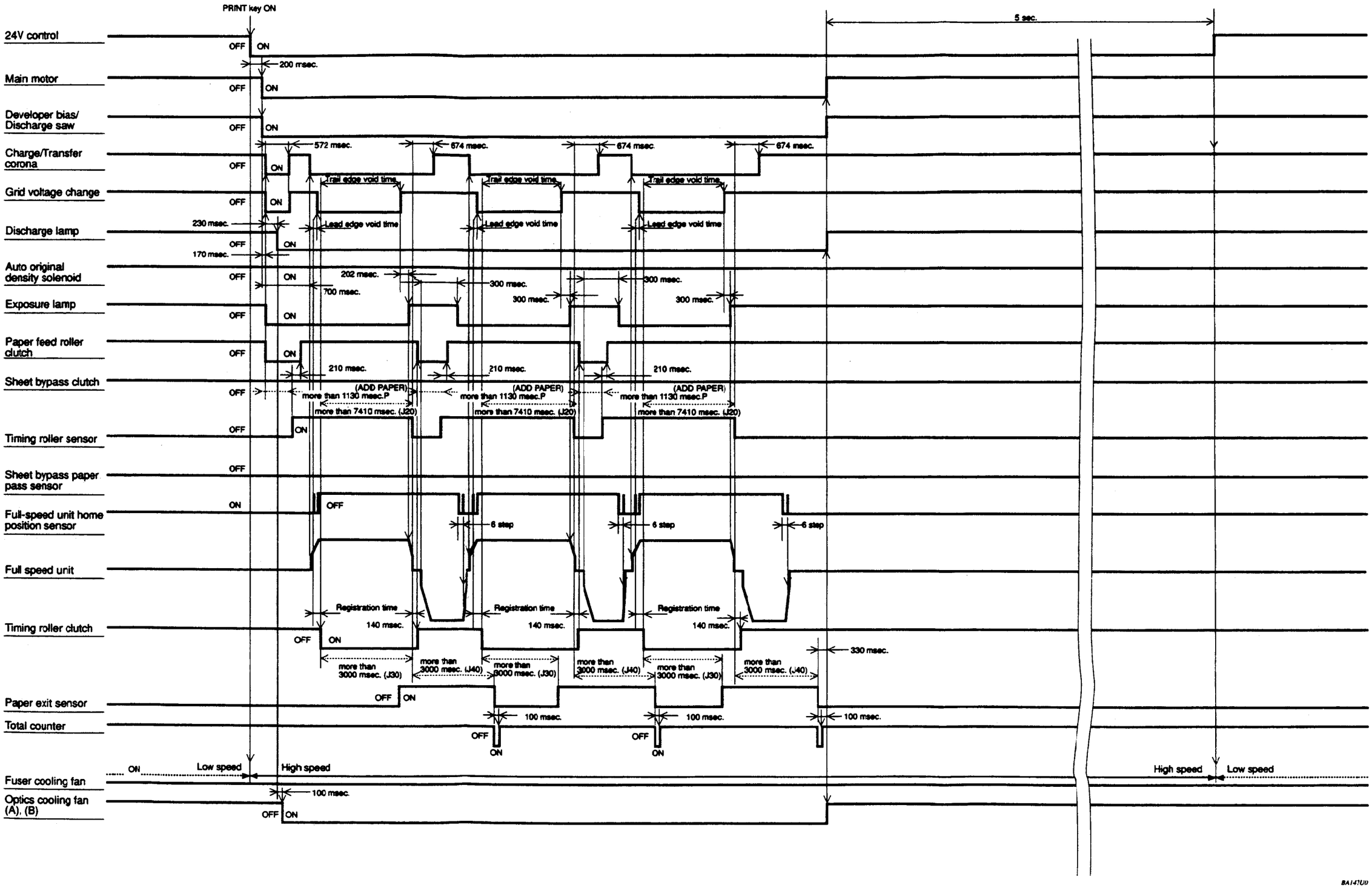


2. Copy operation (Auto mode, Cassette, 1:1, Letter/A4) Three continous copies



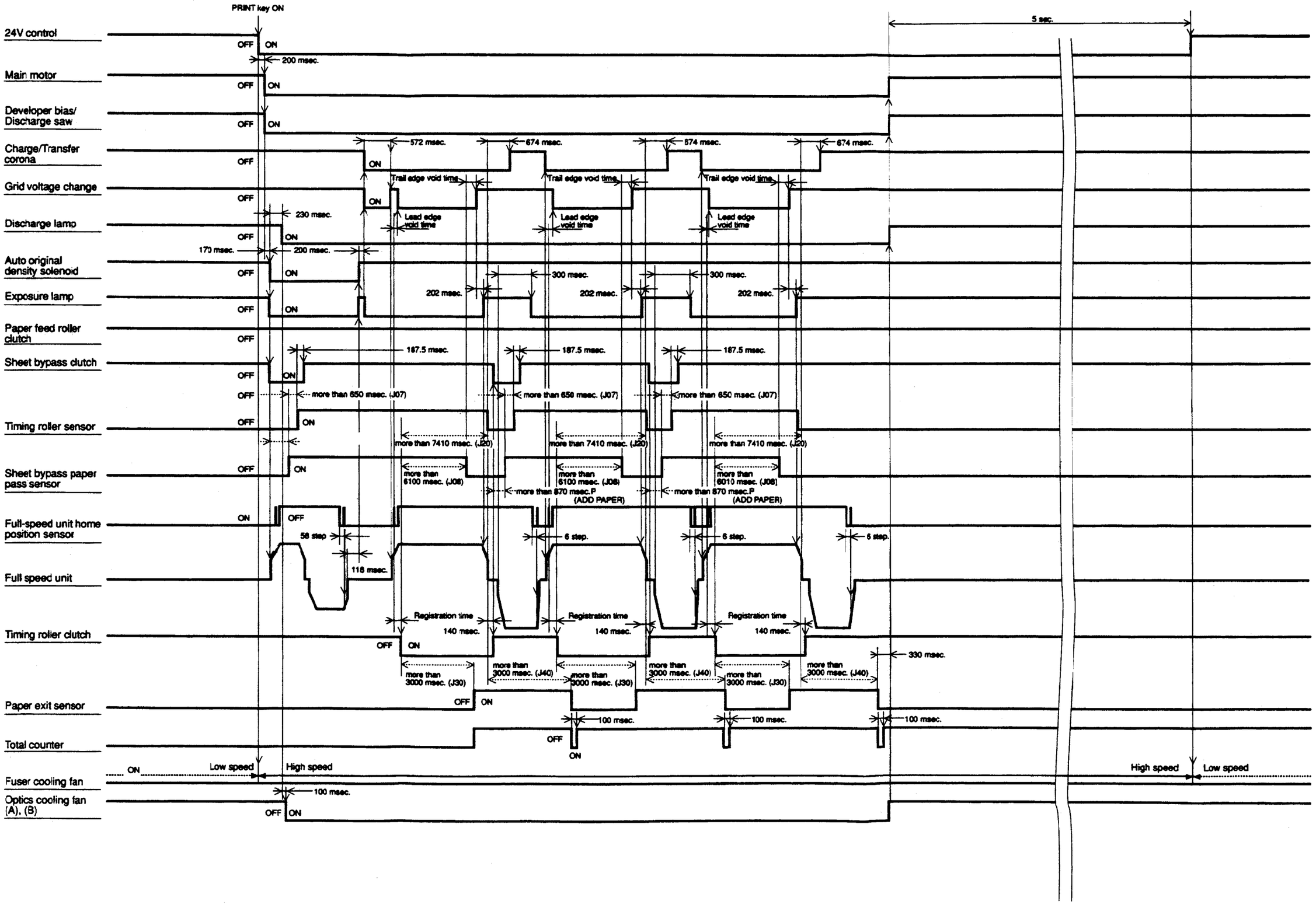
BA14500

3. Copy operation (Document mode, Cassette, 1:1, Letter/A4) Three continous copies



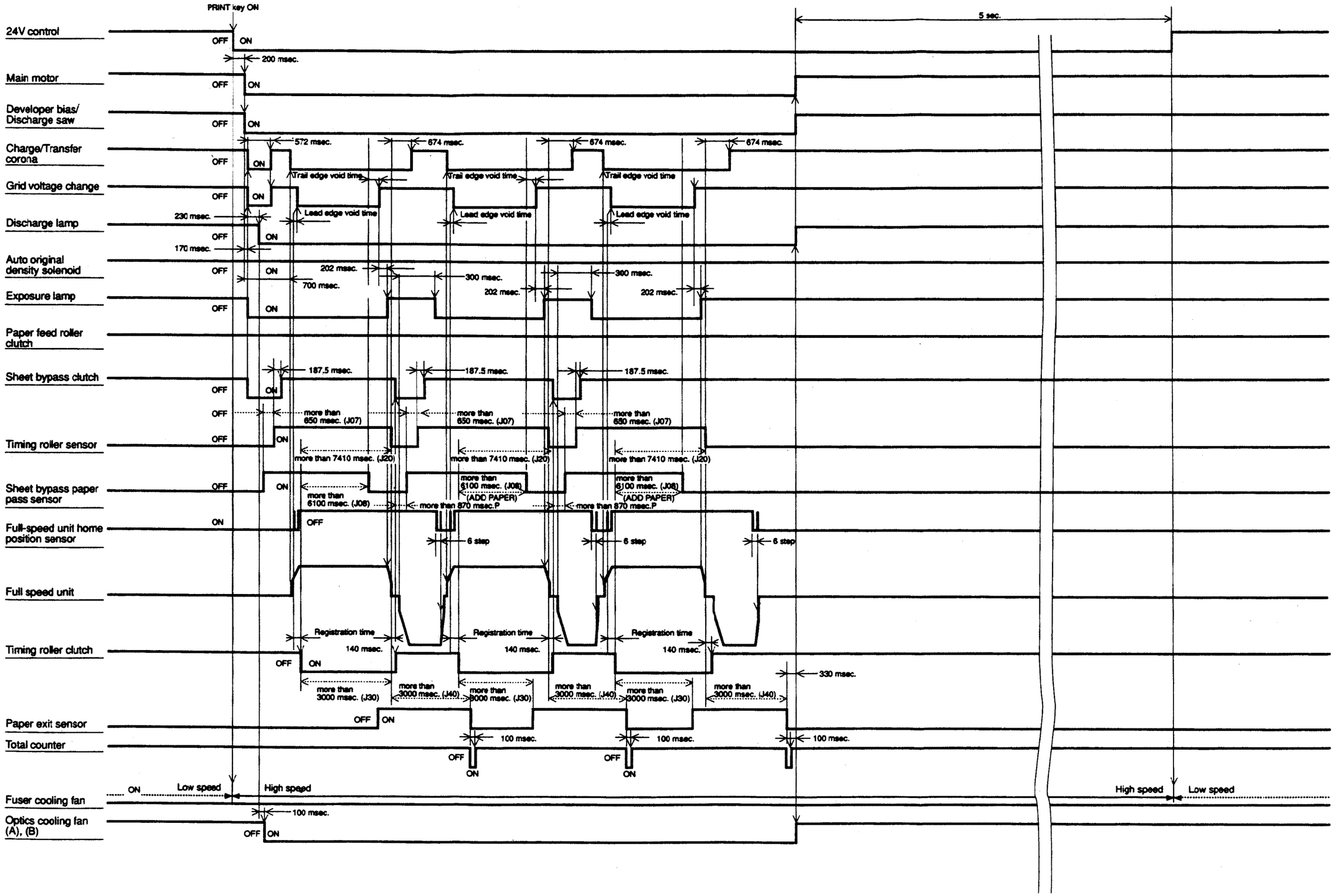
BA147U0

4. Copy operation (Auto mode, Sheet bypass, 1:1, Letter/A4) Three continous copies

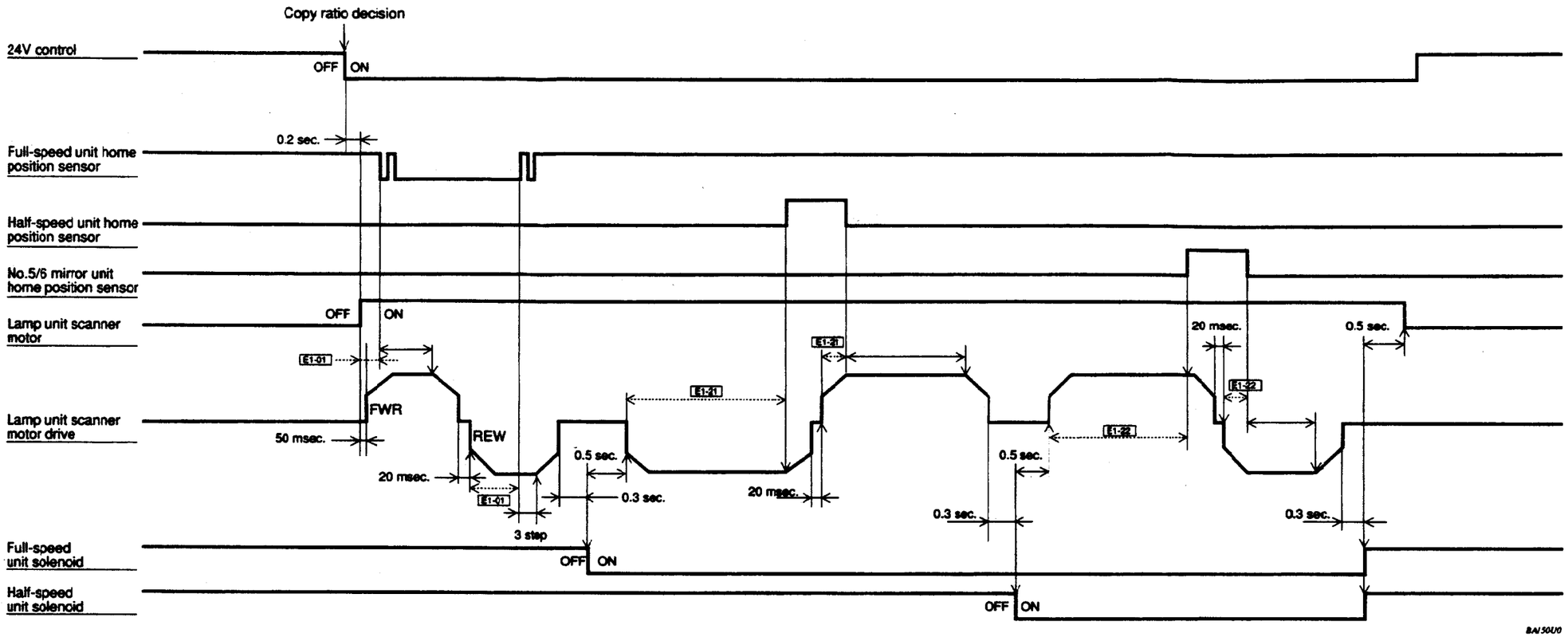


BA14RU0

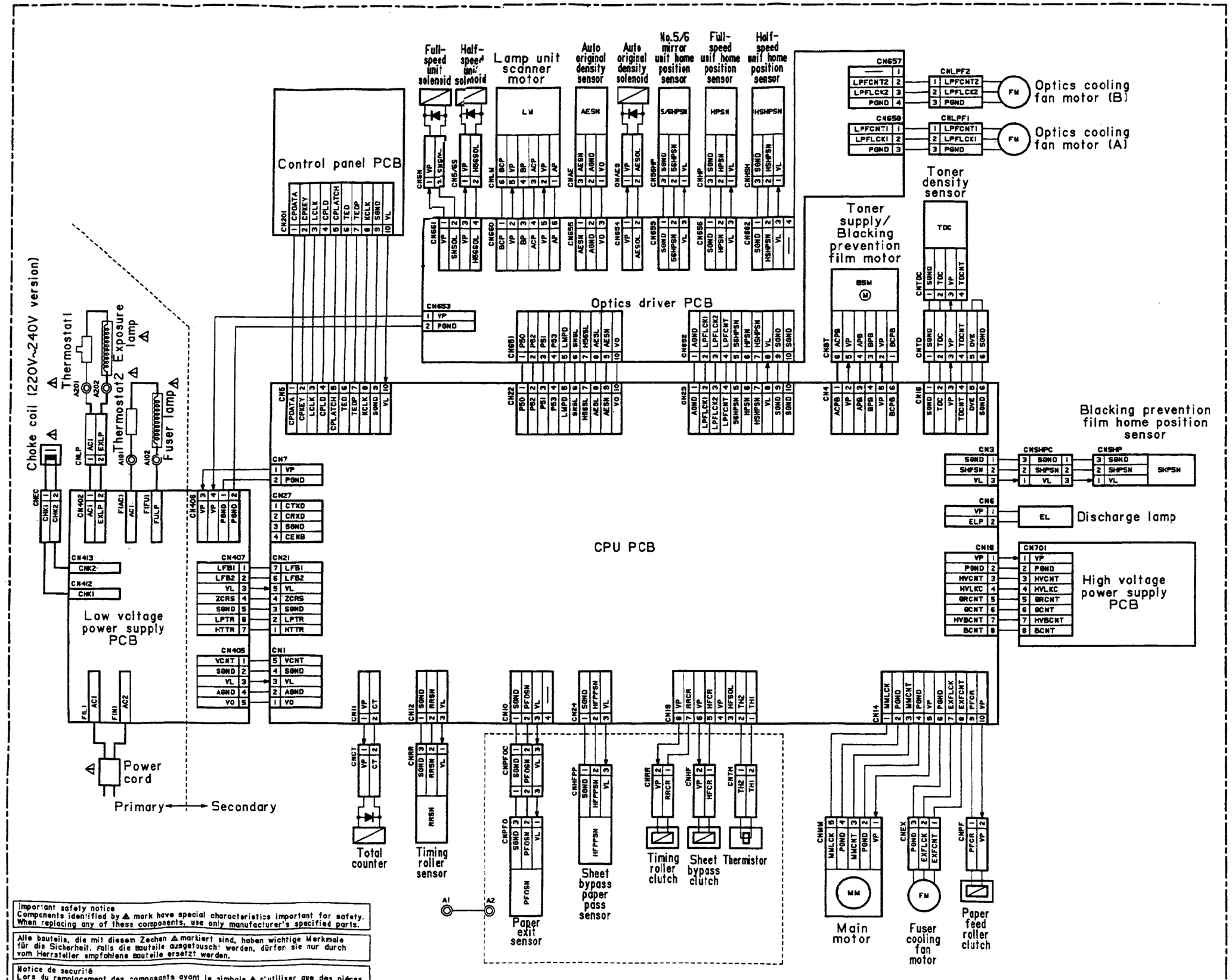
5. Copy operation (Document mode, Sheet bypass, 1:1, Letter/A4) Three continous copies



6. Copy ratio operation



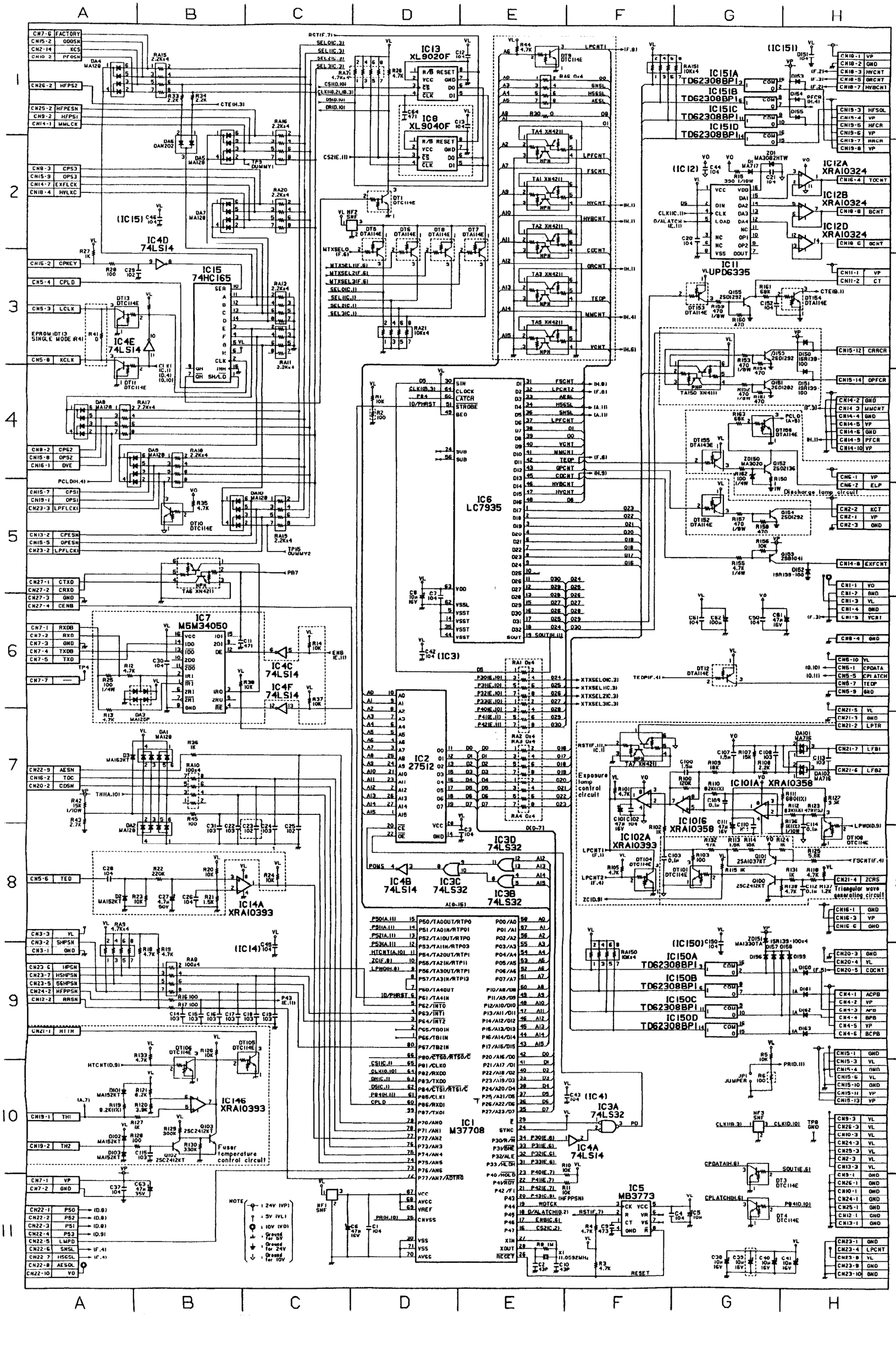
BN50U0



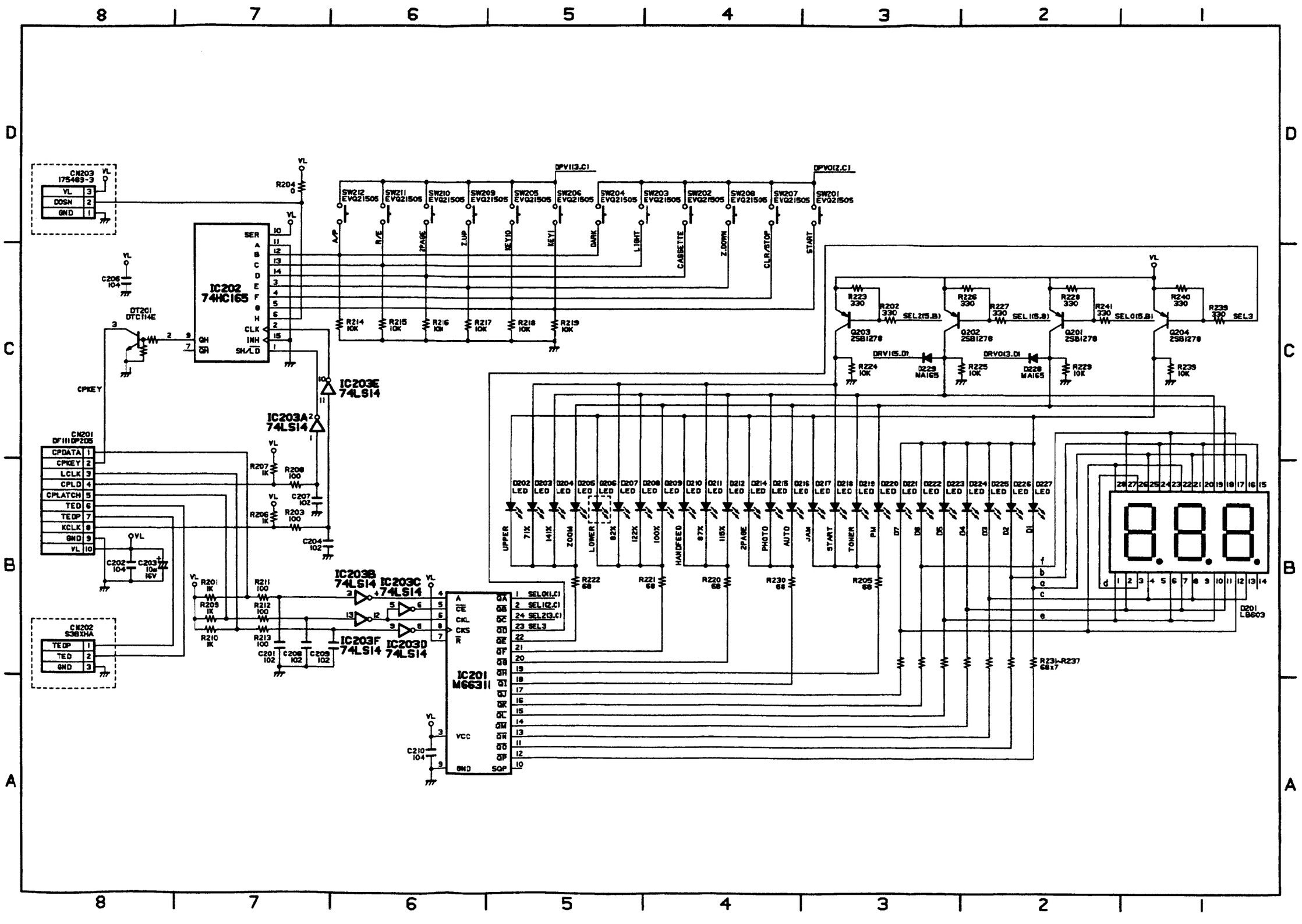
Important safety notice
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

Alle bauteile, die mit diesem Zeichen ⚠ markiert sind, haben wichtige Merkmale für die Sicherheit. Falls die Bauteile ausgetauscht werden, dürfen sie nur durch vom Herrsteller empfohlene Bauteile ersetzt werden.

Notice de securité
Lors du remplacement des composants ayant le simbole ⚠ n'utiliser que des piéces d'origine cells ci ayant des caractéristiques spécifiques.


IC13 XL9020F
IC8 XL9040F
IC4D 74LS14
IC15 74HC165
IC4E 74LS14
IC6 LC7935
IC7 M5M34050
IC4C 74LS14
IC4F 74LS14
IC2 27512
IC1 M37708
IC3D 74LS32
IC4B 74LS14
IC3C 74LS32
IC3B 74LS32
IC3A 74LS32
IC4A 74LS14
IC14A XRA10393
IC146 XRA10393
IC5 MB3773
IC151A TD62308BPI
IC151B TD62308BPI
IC151C TD62308BPI
IC151D TD62308BPI
IC12A XRA10324
IC12B XRA10324
IC12D XRA10324
IC11 UPD6335
IC101A XRA10358
IC101B XRA10358
IC102A XRA10393
IC150A TD62308BPI
IC150B TD62308BPI
IC150C TD62308BPI
IC150D TD62308BPI
Discharge lamp circuit
Fuser temperature control circuit
Exposure lamp control circuit
Triangular wave generating circuit
JUMPER
RESET
NOTE

A-8


CN203 175489-3
VL
DOSN
GND
R204 0
IC202 74HC165
SER
CLK
INH
SH/LD
C206 104
DT201 DTC114E
CPKEY
IC203E 74LS14
IC203A 74LS14
IC203B 74LS14
IC203C 74LS14
IC203F 74LS14
IC203D 74LS14
CN201 DF11-10P-2DS
CPDATA
CPKEY
LCLK
CPLD
CPLATCH
TED
TEDP
KCLK
GND
VL
R207 1K
R208 100
R206 1K
R203 100
C207 102
C204 102
C202 104
C203 10u 16V
R201 1K
R209 1K
R210 1K
R211 100
R212 100
R213 100
C201 102
C208 102
C209 102
CN202 S3B-XHA
TEDP
TED
GND
IC201 M66311
VCC
C210 104
SW212 EVQ21505
SW211 EVQ21505
SW210 EVQ21505
SW209 EVQ21505
SW205 EVQ21505
SW206 EVQ21505
SW204 EVQ21505
SW203 EVQ21505
SW202 EVQ21505
SW208 EVQ21505
SW207 EVQ21505
SW201 EVQ21505
A/P
R/E
2PAGE
Z.UP
KEY10
KEY1
DARK
LIGHT
CASSETTE
Z.DOWN
CLR/STOP
START
R214 10K
R215 10K
R216 10K
R217 10K
R218 10K
R219 10K
R223 330
R202 330
R226 330
R227 330
R228 330
R241 330
R240 330
R239 330
SEL3
Q203 2SB1278
Q202 2SB1278
Q201 2SB1278
Q204 2SB1278
R224 10K
R225 10K
R229 10K
R238 10K
D223 MA165
D228 MA165
D202 LED
D203 LED
D204 LED
D205 LED
D206 LED
D207 LED
D208 LED
D209 LED
D210 LED
D211 LED
D212 LED
D214 LED
D215 LED
D216 LED
D217 LED
D218 LED
D219 LED
D220 LED
D221 LED
D222 LED
D223 LED
D224 LED
D225 LED
D226 LED
D227 LED
UPPER
71%
141%
ZOOM
LOWER
82%
122%
100%
HANDFEED
87%
115%
2PAGE
PHOTO
AUTO
JAM
START
TONER
PM
D7
D6
D5
D4
D3
D2
D1
R222 68
R221 68
R220 68
R230 68
R205 68
R231-R237 68x7
D201 LB603
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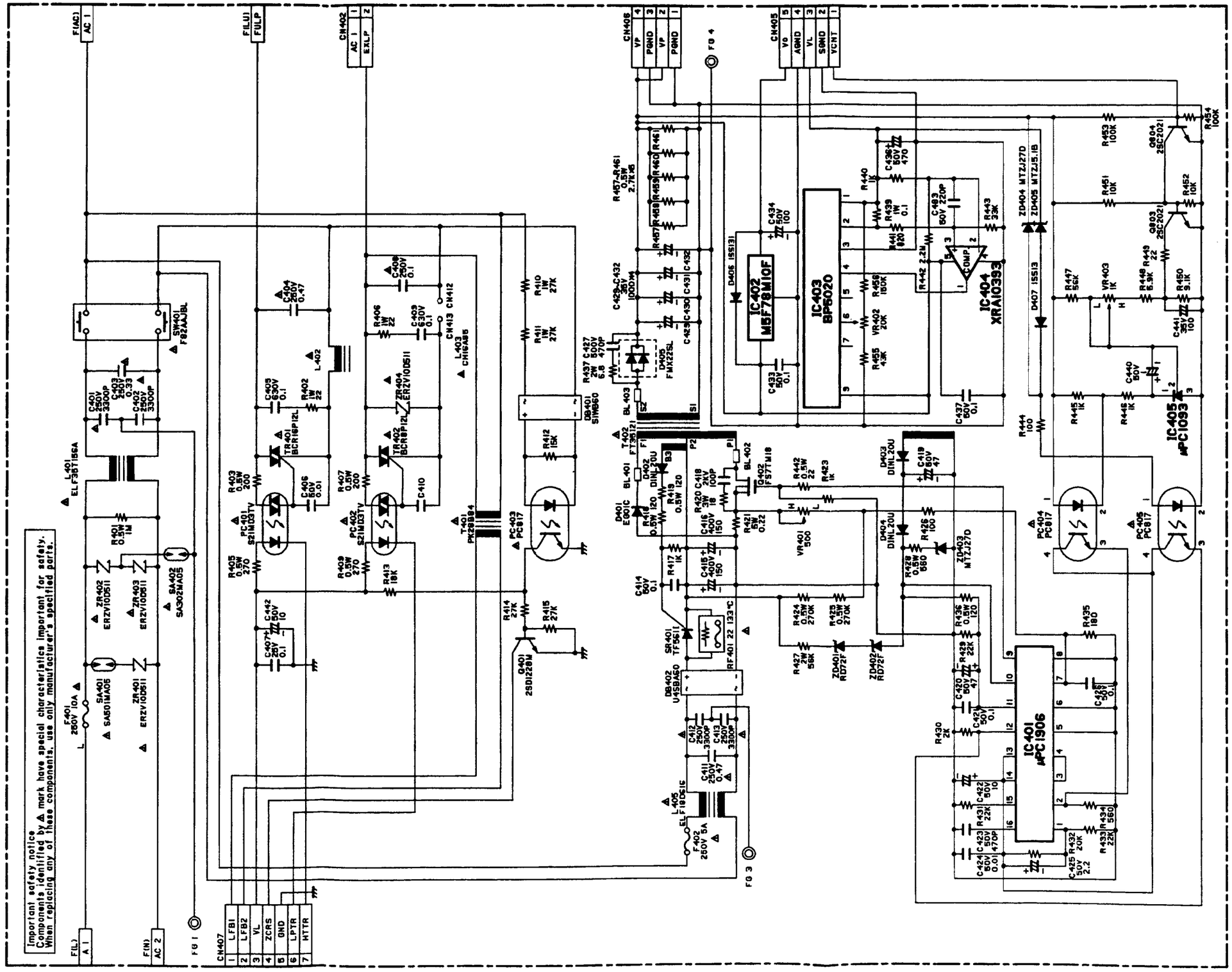
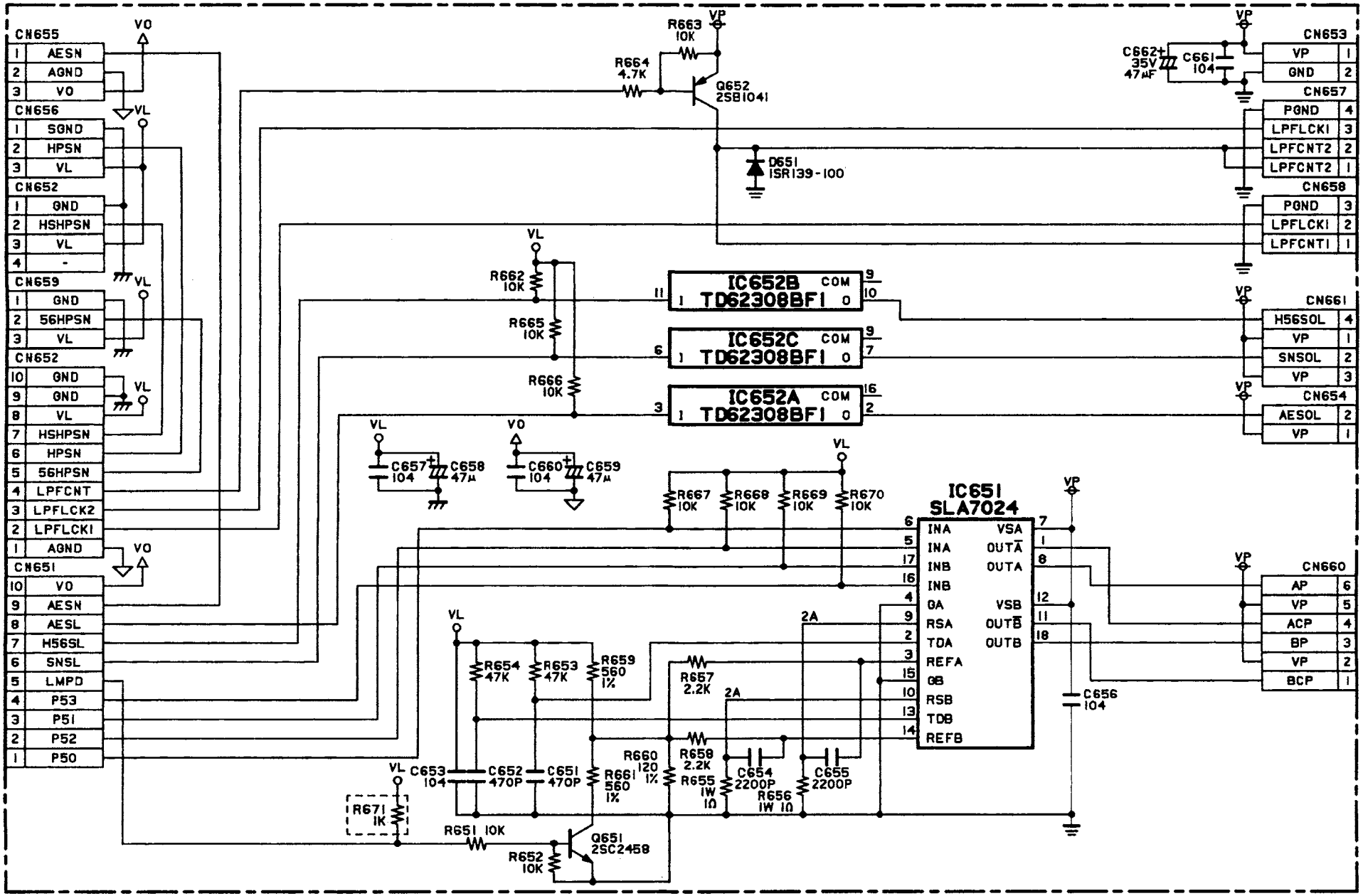
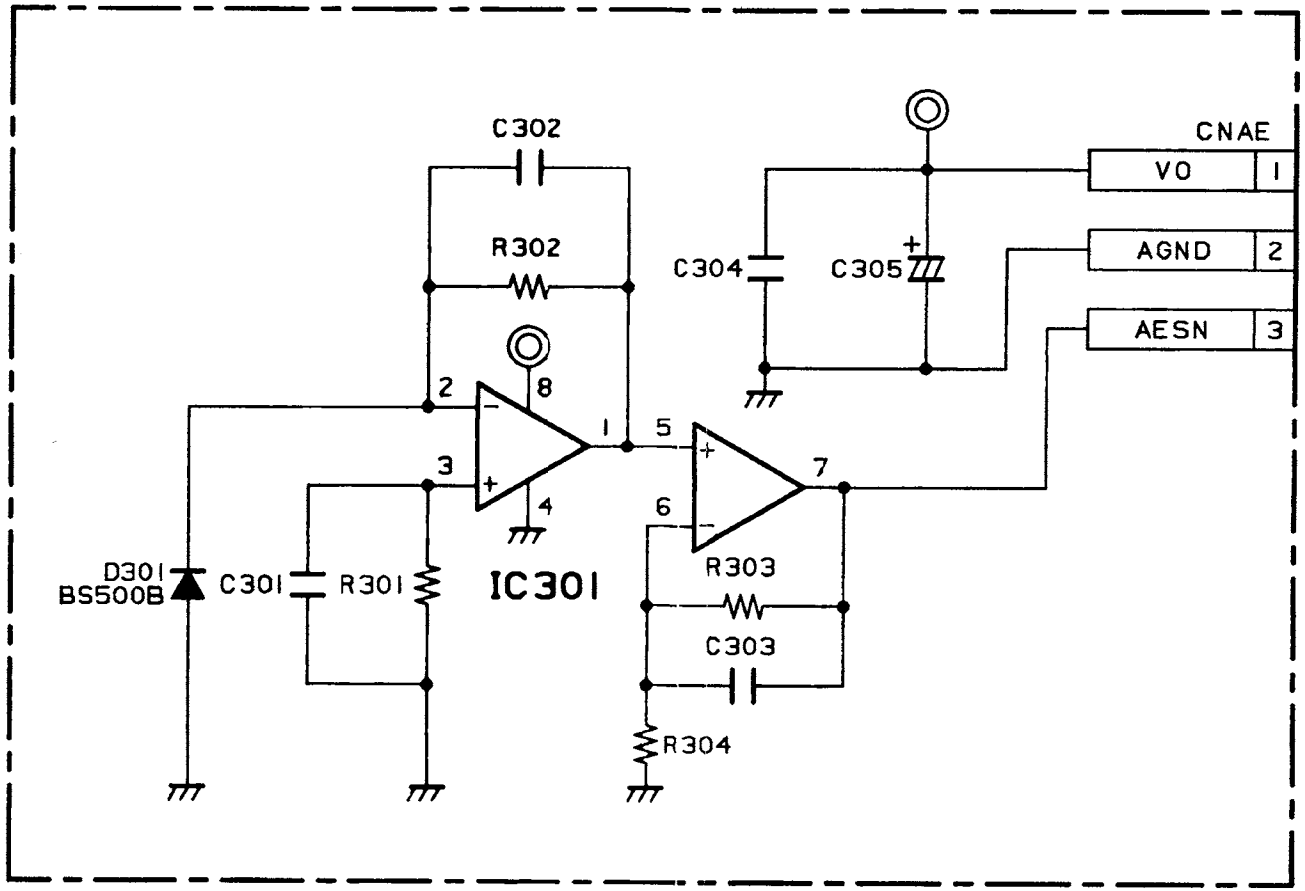
SEL1(2,C)
SEL2(3,C)
SEL3


Important safety notice
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
IC402 M5F78M10F
IC403 BP8020
IC404 XRA10393
IC405 μPC1093
IC401 μPC1906
CN407
LFB1
LFB2
VL
ZCRS
GND
LPTR
HTTR

5. Optics driver PCB




C302
R302
C304
C305
CNAE
VO
1
AGND
2
AESN
3
2
8
1
5
3
7
4
6
D301
BS500B
C301
R301
IC301
R303
C303
R304

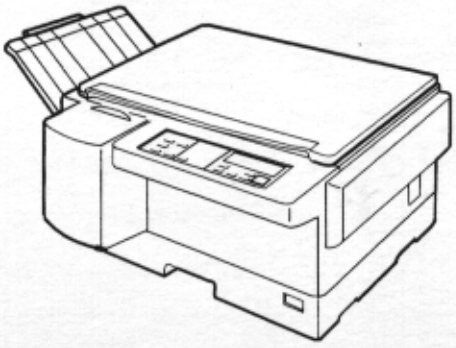
ORDER NO. OED9507303C8

Parts Manual

Revised

Plain Paper Copier

FP-7113



Panasonic

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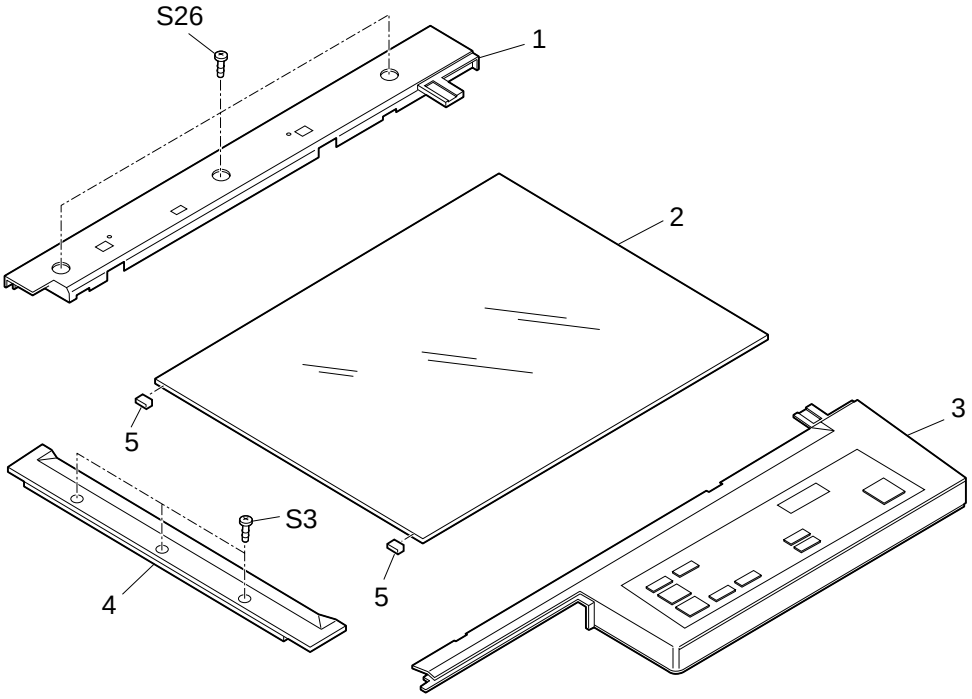
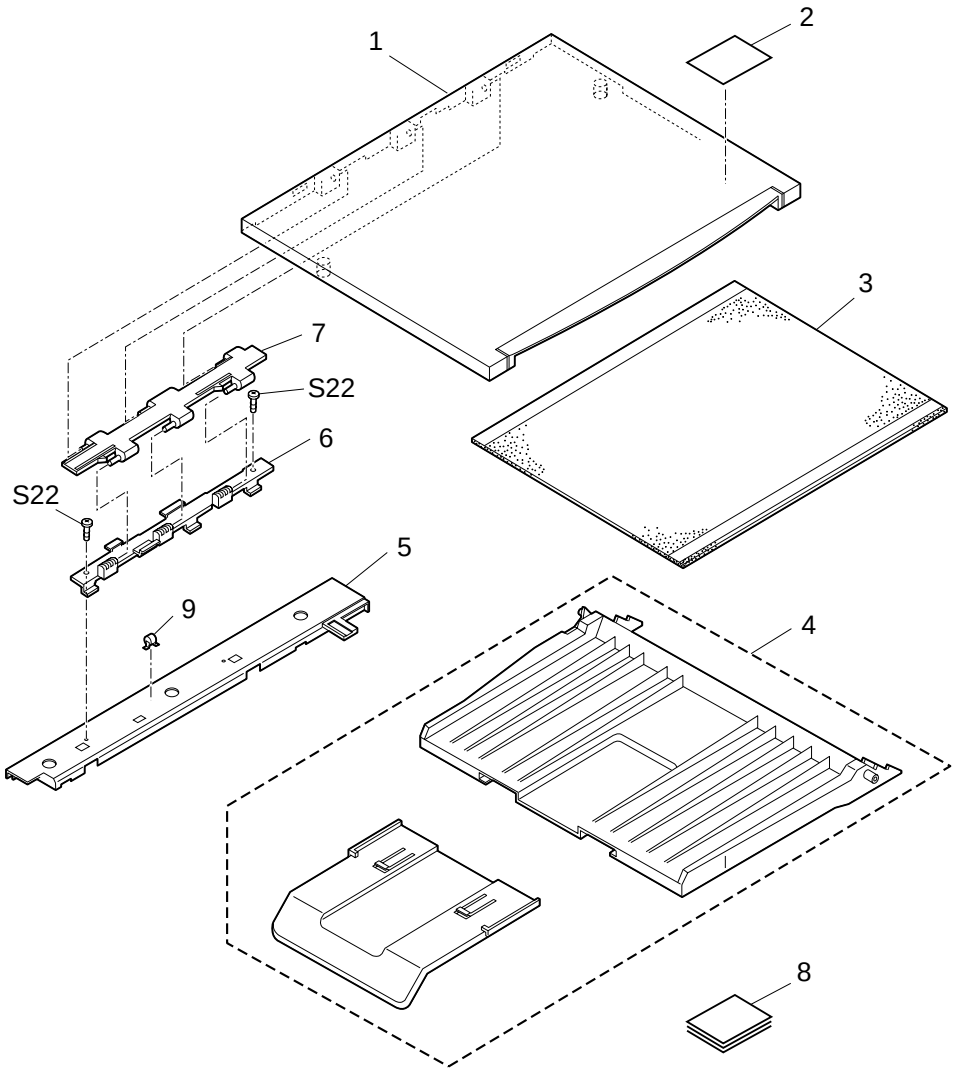
Platen glass



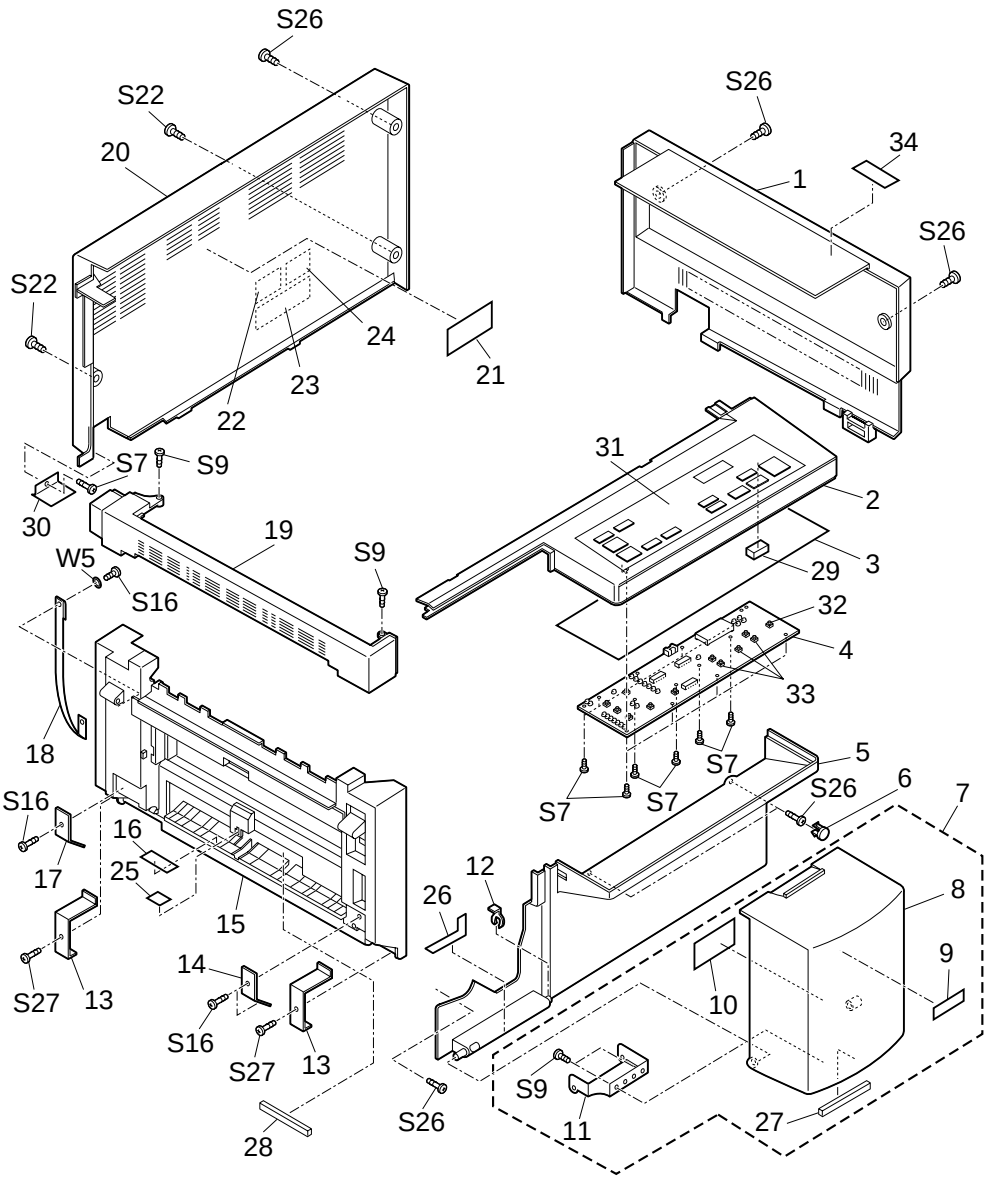
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPNA05711	Top Rear Cover (FP-7713)	P1	1	1
		FFPNA05921	Top Rear Cover (FP-7715)	P1	1	1
		FFPGC0154	Platen Glass	P1	2	1
		FFPXA13D61	Control Panel Ass'y (FP-7713 for North America)	P1	3	1
		FFPXA13D63	Control Panel Ass'y (FP-7713 for others)	P1	3	1
		FFPXA13D67	Control Panel Ass'y (FP-7713 for Taiwan)	P1	3	1
		FFPXA13G01	Control Panel Ass'y (FP-7715 for North America)	P1	3	1
		FFPXA13G03	Control Panel Ass'y (FP-7715 for others)	P1	3	1
		FFPXA13G07	Control Panel Ass'y (FP-7715 for Taiwan)	P1	3	1
		FFPXK29G011	Original Guide Ass'y (for North America)	P1	4	1
		FFPXK29G031	Original Guide Ass'y (Others)	P1	4	1
		FFPXK29G071	Original Guide Ass'y (for Taiwan)	P1	4	1
		FFPKN0271	Glass Cushion (FP-7713)	P1	5	2

Platen Cover



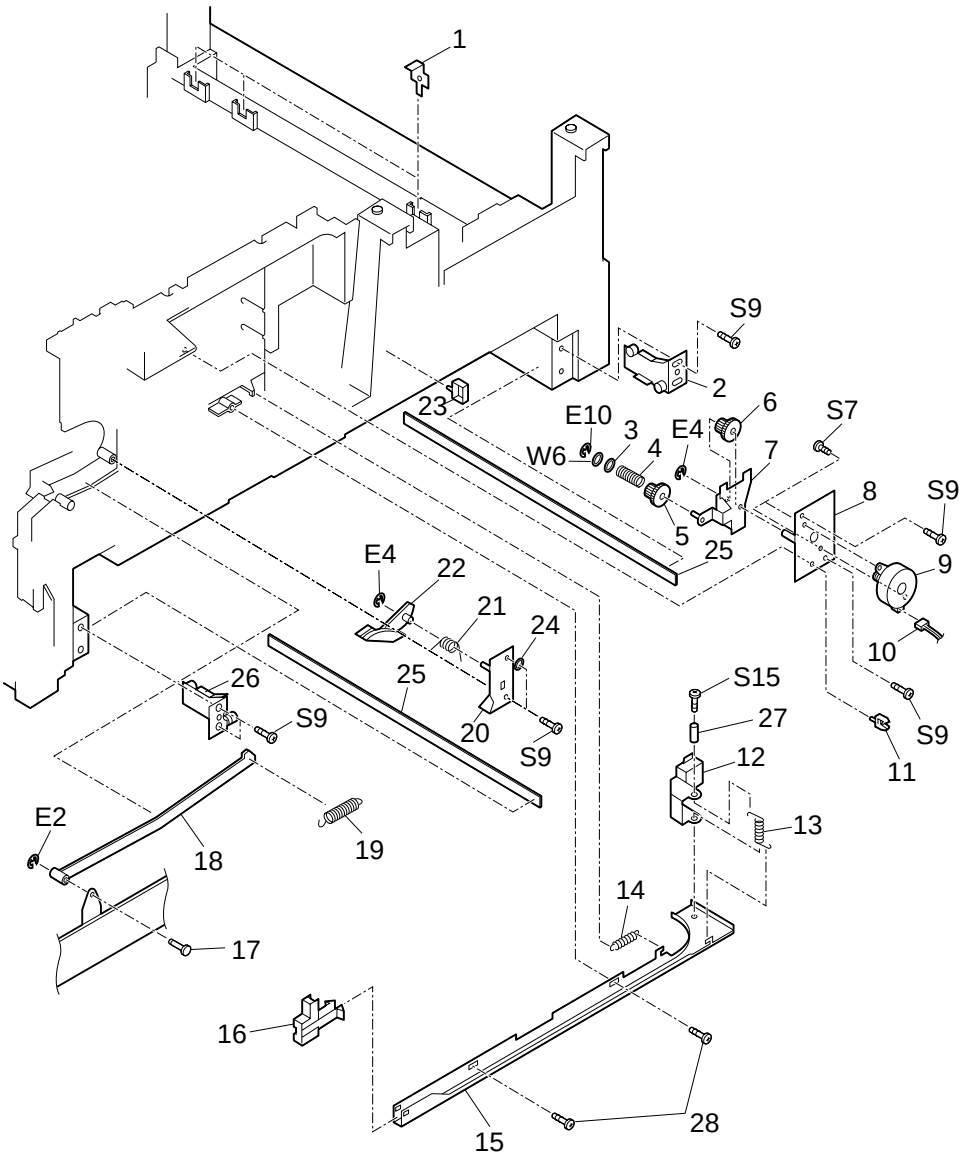
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPNA05753	Platen Cover	P2	1	1
		FFPTE19723	Label, Machine Condition (FP-7713 for North America)	P2	2	1
		FFPTE19733	Label, Machine Condition (FP-7713 for others)	P2	2	1
		FFPTE19792	Label, Machine Condition (FP-7713 for Taiwan)	P2	2	1
		FFPTE20491	Label, Machine Condition (FP-7715 for North America)	P2	2	1
		FFPTE20501	Label, Machine Condition (FP-7715 for others)	P2	2	1
		FFPTE20511	Label, Machine Condition (FP-7715 for Taiwan)	P2	2	1
		FFPNN00352	Platen Rubber (for Taiwan)	P2	3	1
		FFPNN00361	Platen Rubber	P2	3	1
		FFPXJ01D80	Exit Tray Ass'y	P2	4	1
		FFPNA05711	Top Rear Cover (FP-7713)	P2	5	1
		FFPNA05921	Top Rear Cover (FP-7715)	P2	5	1
		FFPNH0059	Platen Hinge, Lower	P2	6	1
		FFPNH0060	Platen Hinge, Upper	P2	7	1
		FFPTD0827	Operating Guide, English (for North America)	P2	8	1
		FFPTD0828	Operating Guide, French (for CANADA)	P2	8	1
		FFPTD0829	Operating Guide ,English	P2	8	1
		FFPTD0830	Operating Guide, German	P2	8	1
		FFPTD0831	Operating Guide, French(except CANADA)	P2	8	1
		FFPTD0832	Operating Guide, Dutch	P2	8	1
		FFPTD0833	Operating Guide, Italian	P2	8	1
		FFPTD0834	Operating Guide, Spanish	P2	8	1
		FFPTD0835	Operating Guide, Swedish	P2	8	1
		FFPTD0836	Operating Guide, Portuguese	P2	8	1
		FFPTD0837	Operating Guide, Taiwan	P2	8	1
		FFPTD0838	Operating Guide, Chinese	P2	8	1
		FFPKM0289	Hinge Holder (FP-7715)	P2	9	1

Platen Cover



PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPNA0570	Right Cover (FP-7713)	P3	1	1
		FFPNA05991	Right Cover (FP-7715)	P3	1	1
		FFPXA24D61	Control Panel Cover, w/o PCB (FP-7713 for North America)	P3	2	1
		FFPXA24D63	Control Panel Cover, w/o PCB (FP-7713 for others)	P3	2	1
		FFPXA24D67	Control Panel Cover, w/o PCB (FP-7713 for Taiwan)	P3	2	1
		FFPXA24G41	Control Panel Cover, w/o PCB (FP-7715 for North America)	P3	2	1
		FFPXA24G43	Control Panel Cover, w/o PCB (FP-7715 for others)	P3	2	1
		FFPXA24G47	Control Panel Cover, w/o PCB (FP-7715 for Taiwan)	P3	2	1
		FFPPJ01861	Insulation Sheet, Control Panel (FP-7713)	P3	3	1
		FFPPJ0195	Insulation Sheet, Control Panel (FP-7715)	P3	3	1
		FFPWB0563	PCB, Control Panel (FP-7713)	P3	4	1
		FFPWB0571	PCB, Control Panel (FP-7715)	P3	4	1
		FFPNA05682	Front Cover	P3	5	1
		FFPPM0009	Screw Cap	P3	6	2
		FFPXA20D80	Toner Hopper Cover Ass'y (FP-7713)	P3	7	1
		FFPXA20G40	Toner Hopper Cover Ass'y (FP-7715)	P3	7	1
		FFPNA0569	Toner Hopper Cover	P3	8	1
		FFPPK1549	Brand Plate (FP-7713)	P3	9	1
		FFPPK1550	Brand Plate (FP-7715)	P3	9	1
		FFPTE19353	Label, Toner Replacement	P3	10	1
		FFPKD12531	Support, Hopper Cover	P3	11	1
		FFPFJ0039	Touch Ring	P3	12	1
		FFPKR1660	Fulcrum Bracket	P3	13	2
		FFPKE0976	Fulcrum Cover, Front	P3	14	1
		FFPNA05675	Left Cover	P3	15	1
		FFPKM02801	Pad	P3	16	1
		FFPKE0977	Fulcrum Cover, Rear	P3	17	1
		FFPKM0274	Belt, Open/Close	P3	18	1
		FFPNA0572	Upper Left Cover	P3	19	1
		FFPNA05732	Back Cover (FP-7713)	P3	20	1
		FFPNA0593	Back Cover (FP-7715)	P3	20	1
		FFPHJ0034	Filter (FP-7713)	P3	21	1
		FFPHJ00341	Filter (FP-7715)	P3	21	1
		FFPTE1763	Label, FCC	P3	22	1
		FFPTE01661	Label, Warranty	P3	23	1
		FFPTE19211	Label, DOC	P3	24	1
		FFPHK0916	Guide Mylar	P3	25	1
		FFPHP0731	Seal, Front Cover	P3	26	1
		FFPHP0732	Seal, Toner Hopper Cover	P3	27	1
		FFPKP00771	Pad 1	P3	28	1
		FFPHP0787	Sponge, Print Key	P3	29	1
		FFPNA0595	Blind Cover (FP-7715)	P3	30	1
		FFPPJ0210	Control Panel Sheet (FP-7713 for North America)	P3	31	1
		FFPPJ0211	Control Panel Sheet (FP-7713 for others)	P3	31	1
		FFPPJ0212	Control Panel Sheet (FP-7713 for Taiwan)	P3	31	1
		FFPPJ0215	Control Panel Sheet (FP-7715 for North America)	P3	31	1
		FFPPJ0216	Control Panel Sheet (FP-7715 for others)	P3	31	1
		FFPPJ0217	Control Panel Sheet (FP-7715 for Taiwan)	P3	31	1
		EVQ21F05B	Print Key Switch (FP-7715)	P3	32	1
		EVQ21505R	Other Key Switch, Print Key switch (FP-7713)	P3	33	20
			(Japan only)	P3	34	

Frame (front)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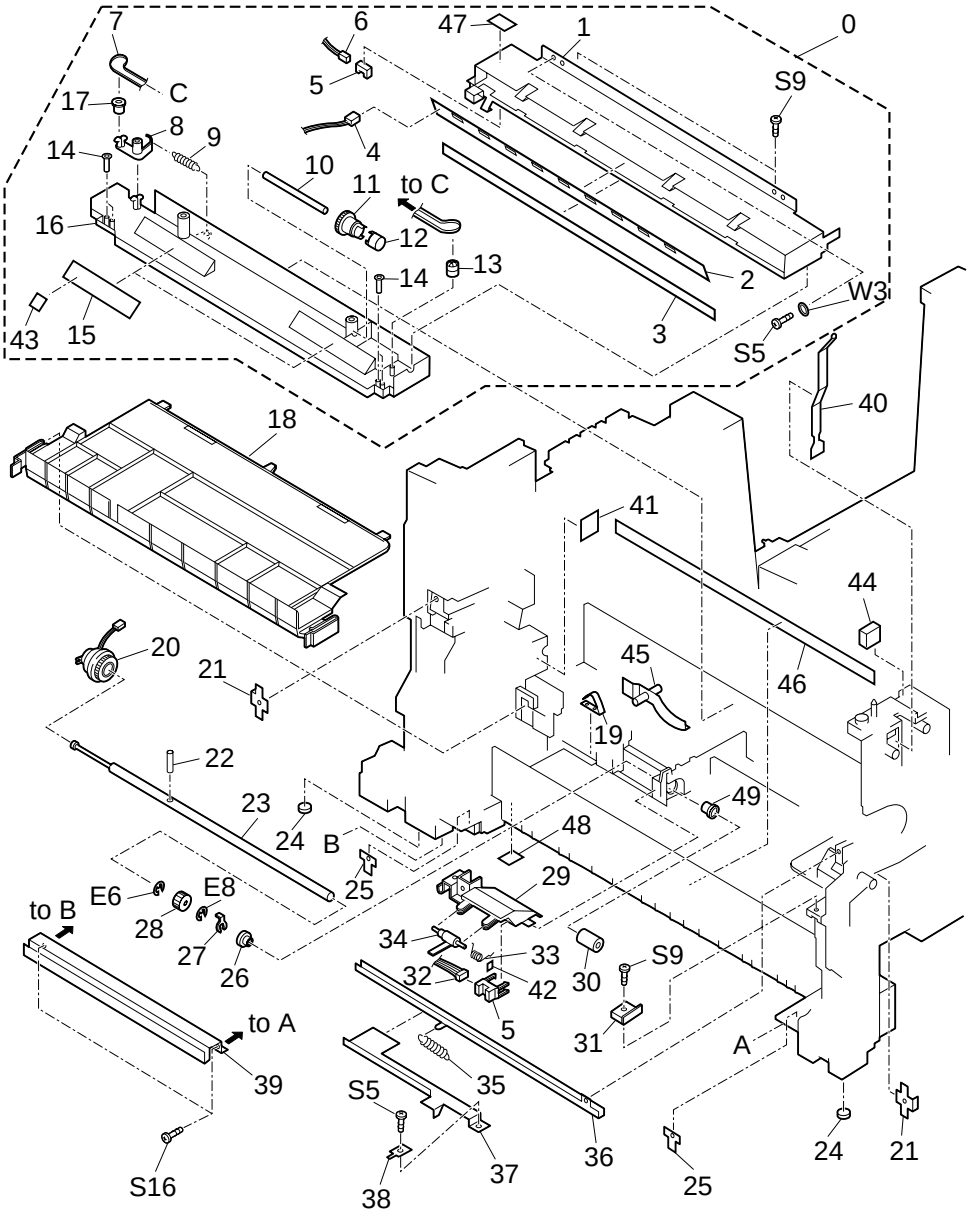
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPFF0071	Nut	P4	1	3
		FFPXA36G801	Roller Bracket, Right	P4	2	1
		FFPMV0002	Polyslider	P4	3	1
		FFPLP0942	Spring	P4	4	1
		FFPMF0945	Gear	P4	5	1
		FFPMF0944	Gear	P4	6	1
		FFPXA23D80	Drive Bracket Sub Ass'y	P4	7	1
		FFPXA22D80	Eraser Drive Frame Ass'y	P4	8	1
		42SPM24DGYM	Stepping Motor	P4	9	1
		FFPWC1540	BSM Harness	P4	10	1
		UAMS05S2	Clamp	P4	11	1
		FFPLK03151	Actuator	P4	12	1
		FFPLR0251	Spring	P4	13	1
		FFPLP0940	Spring	P4	14	1
		FFPKS0999	Connection Plate	P4	15	1
		FFPKM0273	Bracket	P4	16	1
		FFPFG04582	Pin	P4	17	1
		FFPLK03021	Open/Close Arm, Front	P4	18	1
		FFPLP0938	Arm Spring	P4	19	1
		FFPKB0878	Lift Frame, Shutter	P4	20	1
		FFPLR02501	Pressure Spring	P4	21	1
		FFPLL05332	Shutter Lift Lever 1	P4	22	1
		LWS1S	LWS	P4	23	1
		FFPMV0008	Polyslider	P4	24	1
		FFPHK0929	Slide Sheet 1	P4	25	2
		FFPXA37G801	Roller Bracket, Left	P4	26	1
		FFPLT0124	Sleeve	P4	27	1
		FFPFA0069	Shoulder Screw	P4	28	2

Frame (front)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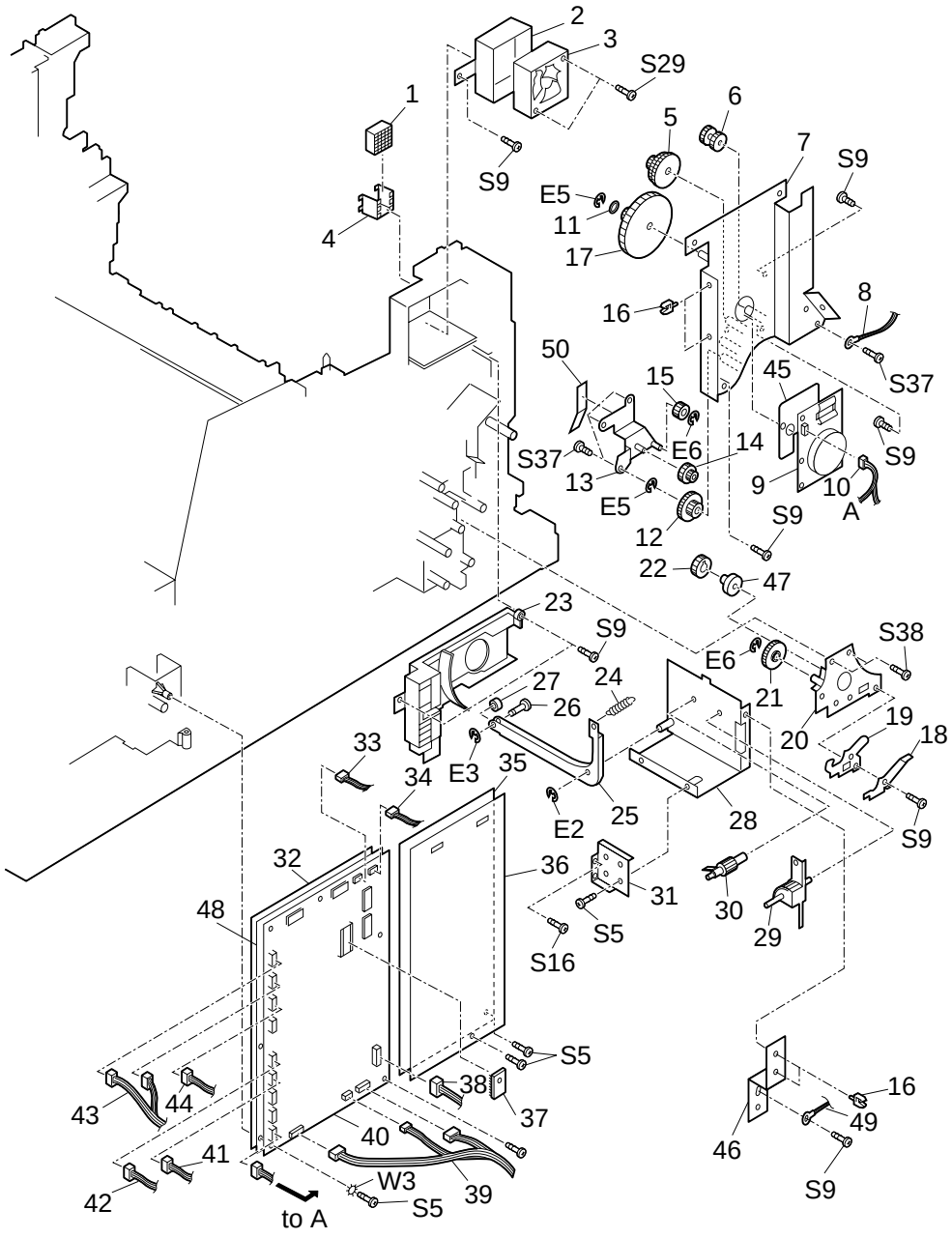
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPXA11D60	Eraser Ass'y (Others)	P5	0	1
		FFPXA11D61	Eraser Ass'y (for North America/Taiwan)	P5	0	1
		FFPXA26D80	Eraser Lamp Frame Ass'y	P5	1	1
		PQ24V12WMG1	Lamp	P5	2	1
		FFPGB0021	Filter	P5	3	1
		FFPWC1550	EL Harness	P5	4	1
		TLP1225	Sensor	P5	5	2
		FFPWC1537	SHPSC Harness	P5	6	1
		FFPJC0260	Belt Shutter	P5	7	1
		FFPLK0304	Pulley Arm	P5	8	1
		FFPLP09391	Tension Spring	P5	9	1
		FFPLG1390	Gear Shaft	P5	10	1
		FFPMF0964	Gear, Idle	P5	11	1
		FFPMF0963	Gear	P5	12	1
		FFPMB0227	Pulley	P5	13	1
		FFPMA0519	Guide Roller	P5	14	4
		FFPGC0185	Reflection Sheet	P5	15	2
		FFPXA25D801	Eraser Base Ass'y	P5	16	1
		FFPMB0224	Pulley	P5	17	1
		FFPKF12226	Paper Guide	P5	18	1
		FFPLQ04401	Lift Spring	P5	19	1
		BJ-3.5-W03	Magnetic Clutch Ass'y (FP-7713)	P5	20	1
		BJ-3.5-W04	Magnetic Clutch 2 Ass'y (FP-7715)	P5	20	1
		FFPFF0071	Nut	P5	21	2
		XPJ2D10WV	Pin	P5	22	1
		FFPLG15721	Paper Feed Roller Shaft	P5	23	1
		FFPNM0028	Foot	P5	24	2
		FFPFF0072	Nut	P5	25	2
		FFPMQ0594	Bushing 1	P5	26	1
		FFPFJ0039	Touch Ring	P5	27	1
		FFPMF0797	DFP Drive Gear	P5	28	1
		FFPKM02761	Bracket, Sensor	P5	29	1
		FFPMA05161	Paper Feed Roller	P5	30	1
		FFPKS10101	Stopper (except North America)	P5	31	1
		FFPWC1543	RS Harness (FP-7713)	P5	32	1
		FFPWC1571	RS Harness (FP-7715)	P5	32	1
		FFPLR02531	Spring	P5	33	1
		FFPLL05341	Sensor Lever	P5	34	1
		FFPLP0959	Spring	P5	35	1
		FFPKD12633	Support Stay	P5	36	1
		FFPKB08691	Slide Plate	P5	37	1
		FFPKF1364	Roller Holder	P5	38	1
		FFPKD12592	Lift Stay	P5	39	1
		FFPLQ0391	Drum Ground Plate	P5	40	1
		FFPHK0923	Mylar	P5	41	1
		FFPKH03071	Spacer	P5	42	1
		FFPJC0221	Sheet, Preventing Reflection	P5	43	2
		FFPKN0334	Cushion	P5	44	1
		FFPLL05471	Sensor Lever (FP-7715)	P5	45	1
		FFPHK0933	Slide Sheet 5	P5	46	1
			(Japan only)	P5	47	
		FFPJC0207	No. 6 Mirror Sheet	P5	48	1
		FFPMQ0602	Bushing 2	P5	49	1

Frame (rear)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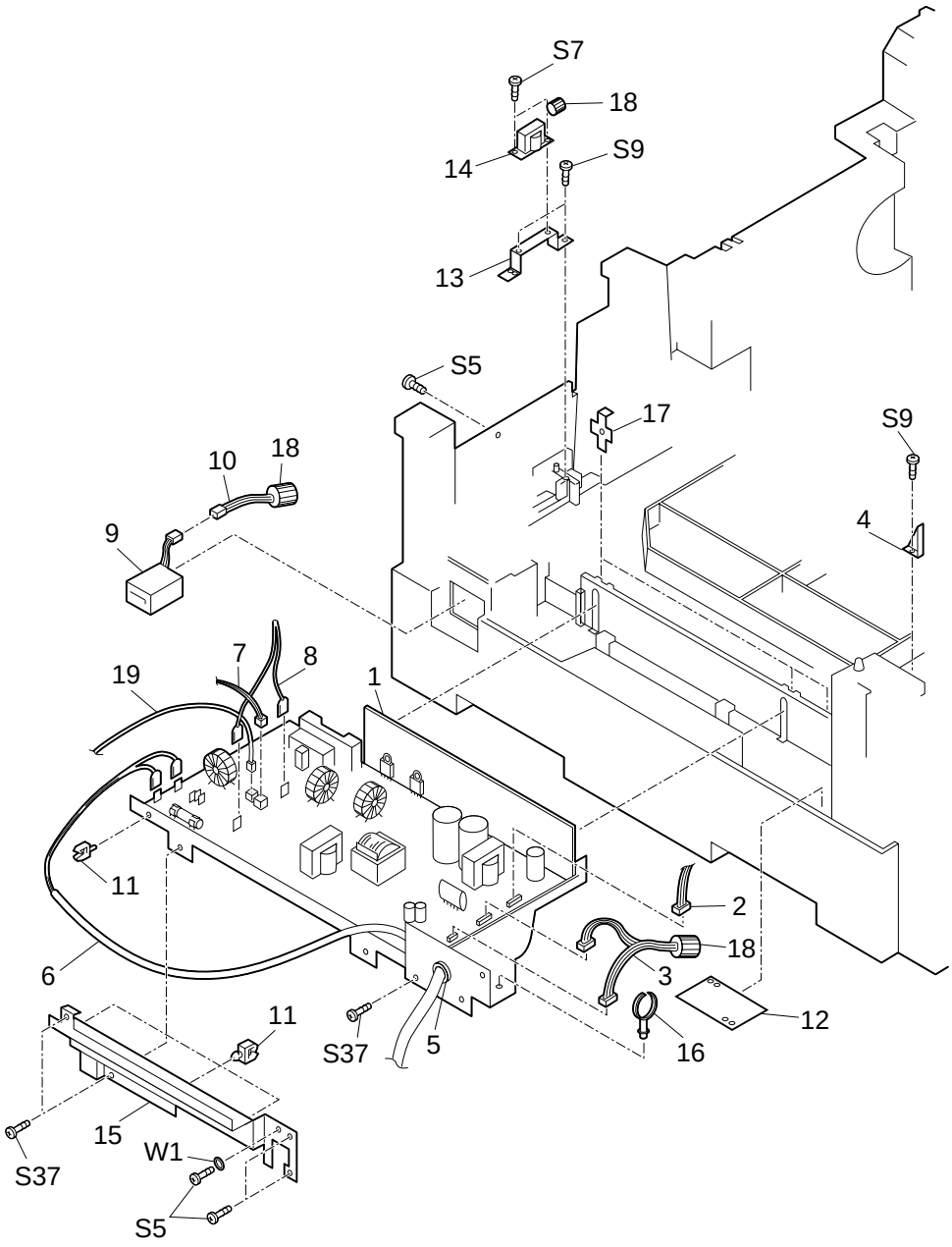
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPHJ00351	Ozone Filter	P6	1	1
		FFPHA00661	Duct (FP-7713)	P6	2	1
		FFPHA0067	Duct (FP-7715)	P6	2	1
		FBA08A24H2F0	Fan Motor 1	P6	3	1
		FFPKD12521	Holder, Ozone Filter	P6	4	1
		FFPMF0936	Gear 1	P6	5	1
		FFPMF09382	Gear, Developer Drive	P6	6	1
		FFPXA17G00	Drive Frame Ass'y	P6	7	1
		FFPWC1555	KBE Harness	P6	8	1
		DNQ18A12R20A	Main Motor	P6	9	1
		FFPWC1535	MF Harness	P6	10	1
		FFPMV0004	Polyslider	P6	11	1
		FFPMF1116	Gear, Paper Feed Drive	P6	12	1
		FFPXA18D80	Drive Bracket 3 Ass'y	P6	13	1
		FFPMF09371	Gear 2	P6	14	1
		FFPMF09391	Gear, Idle 2	P6	15	1
		UAMS05S2	Clamp	P6	16	4
		FFPMF09351	Gear, Drum Drive	P6	17	1
		FFPLQ03954	Spring	P6	18	1
		FFPKH0306	Spacer	P6	19	1
		FFPKS10117	Bracket, Idle Shaft	P6	20	1
		FFPMF0917	Gear, 19T	P6	21	1
		FFPMF09571	Gear, DFP Shaft	P6	22	1
		FFPXA09D80	High Voltage Terminal Ass'y	P6	23	1
		FFPLP09601	Lift Spring	P6	24	1
		FFPLL0536	Cassette Lift Lever	P6	25	1
		FFPLG1007	Lift Roller Shaft	P6	26	1
		FFPMA0374	Lift Roller	P6	27	1
		FFPKQ01621	Lift Base	P6	28	1
		FFPMF0956	Gear, Cassette Lift	P6	29	1
		FFPLK03071	Cassette Lift Arm	P6	30	1
		FFPKS10021	Lift Support Plate	P6	31	1
		FFPKS09972	CPU Shield Plate	P6	32	1
		FFPWC1536	SHPS Harness	P6	33	1
		FFPWC1550	EL Harness	P6	34	1
		EUKMBN602HB	PCB HVPS	P6	35	1
		FFPKE0965	Cover, PCB HVPS	P6	36	1
		FFPAH0204	P-Rom (FP-7713)	P6	37	1
		FFPAH0205	P-Rom (FP-7715)	P6	37	1
		FFPWC1543	RS Harness (FP-7713)	P6	38	1
		FFPWC1571	RS Harness (FP-7715)	P6	38	1
		FFPWC1572	KB Harness (FP-7715)	P6	39	1
		FFPWB0601	PCB CPU (FP-7713)	P6	40	1
		FFPWB06011	PCB CPU (FP-7715)	P6	40	1
		FFPWC1547	VL Harness	P6	41	1
		FFPWC1542	VP Harness	P6	42	1
		FFPWC1538	M Harness	P6	43	1
		FFPWC1540	BSM Harness	P6	44	1
		FFPKB08821	Drive Frame 2	P6	45	1
		FFPKF13741	Clutch Stopper	P6	46	1
		FFPMQ0536	Bushing	P6	47	1
		FFPJC0259	CPU Shield Sheet (for Taiwan)	P6	48	1
		FFPWC1656	Ground Harness (for Taiwan)	P6	49	1
		FFPDE0077	Ground Plate	P6	50	1

Frame (front)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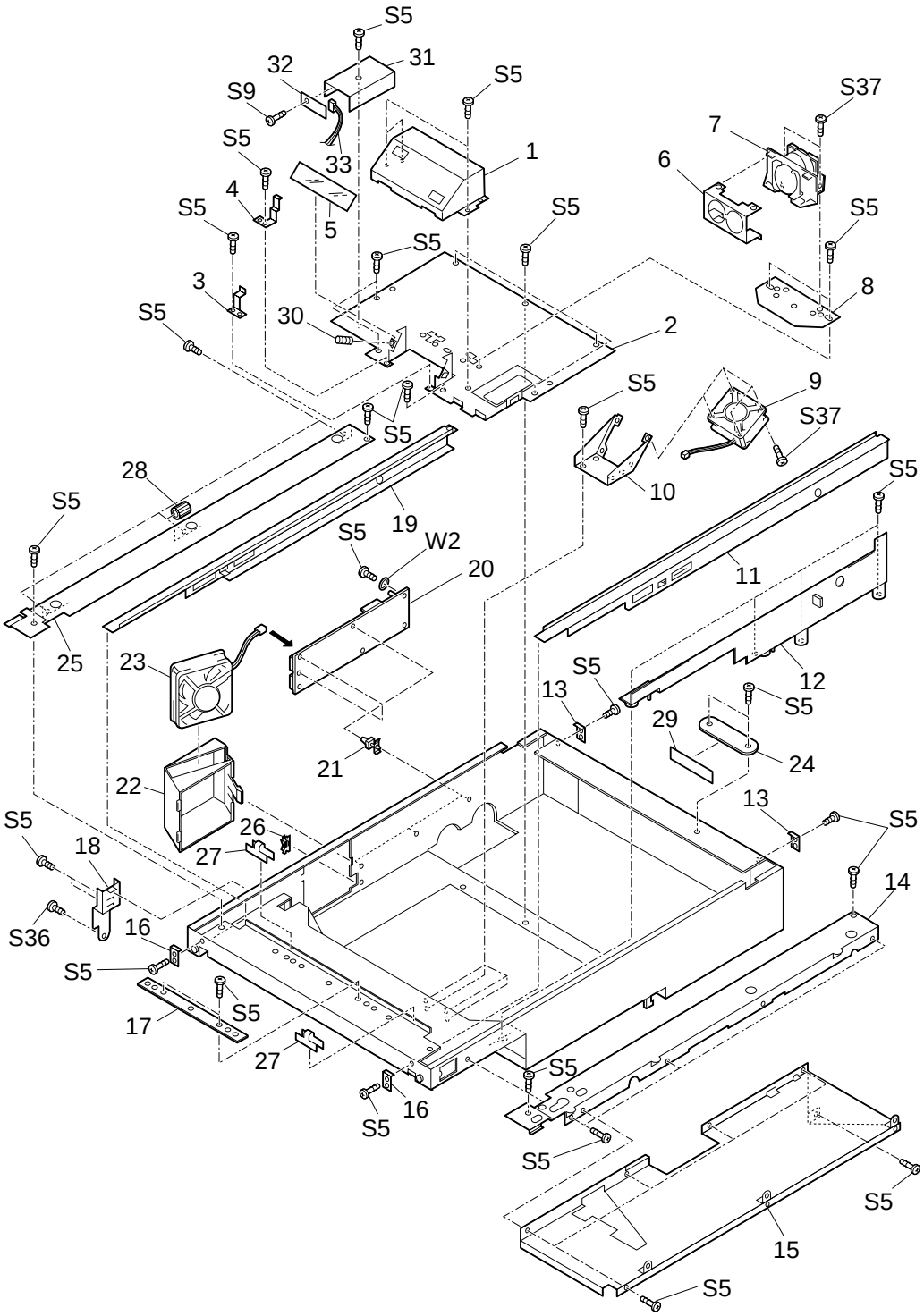
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPWB0564	PCB, Power Supply (FP-7713 for Taiwan)	P7	1	1
		FFPWB05641	PCB, Power Supply (FP-7713 for North America)	P7	1	1
		FFPWB05643	PCB, Power Supply (FP-7715 for Taiwan)	P7	1	1
		FFPWB05644	PCB, Power Supply (FP-7715 for North America)	P7	1	1
		FFPWB05645	PCB, Power Supply (FP-7713 for others)	P7	1	1
		FFPWB05645	PCB, Power Supply (FP-7715 for others)	P7	1	1
		FFPWC1542	VP Harness	P7	2	1
		FFPWC1547	VL Harness	P7	3	1
		FFPKD12822	Optics Support Plate	P7	4	1
		SR6N3-4	Cord Bushing (for North America)	P7	5	1
		SR6N4	Cord Bushing (Others)	P7	5	1
		SR6N4-4	Cord Bushing (for Taiwan)	P7	5	1
		FFPEV0117	Power Cord (Others)	P7	6	1
		FFPEV0118	Power Cord (for Australia)	P7	6	1
		FFPEV0119	Corona Power Cord (for U.K.)	P7	6	1
		FFPEV0130	Power Cord (for Taiwan)	P7	6	1
		FFPEV0132	Power Cord (for North America)	P7	6	1
		FFPEV0135	Power Cord (for China)	P7	6	1
		FFPWC1552	LPC Harness	P7	7	1
		FFPWC1535	MF Harness	P7	8	1
		FFPCV0009	Total Counter	P7	9	1
		FFPWC1538	M Harness	P7	10	1
		LWS1S	LWS	P7	11	4
		FFPKE09841	Cover	P7	12	1
		FFPKD12701	Bracket, Choke Coil (except North America)	P7	13	1
		CH48I40	Choke Coil (except North America/Taiwan)	P7	14	1
		FFPNA0587	Shield Plate, Power Supply	P7	15	1
		HL18-0	Harness Lifter	P7	16	1
		FFPFF0071	Nut	P7	17	3
		E1815MRC	Ferrite Core (except North America)	P7	18	3
		FFPWC1575	ADF Power Sub-Harness(FP-7715)	P7	19	1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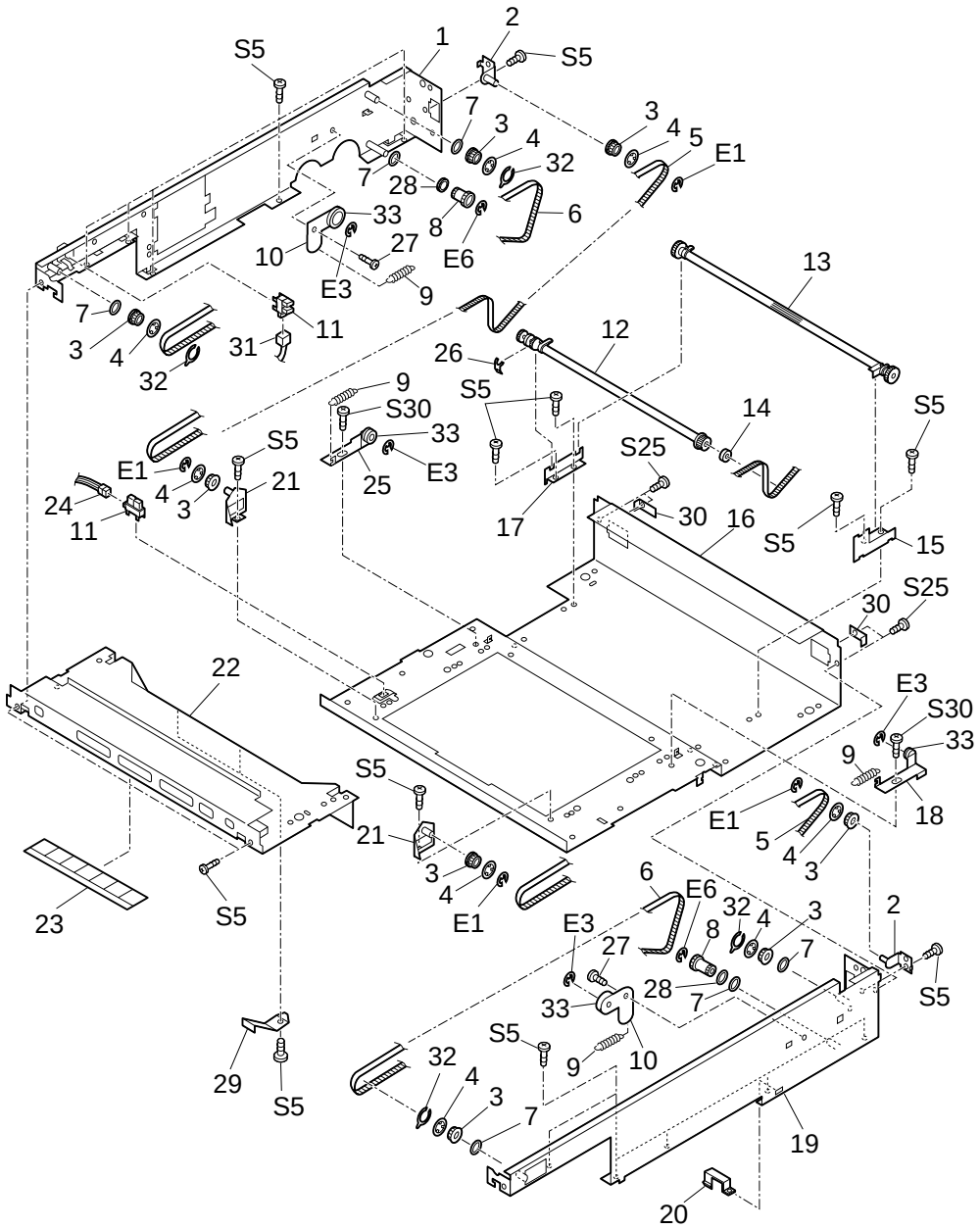
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPKE09633	Lens Cover	P8	1	1
		FFPKB08794	Bottom Plate, Lens	P8	2	1
		FFPLQ0375	Spring	P8	3	1
		FFPLQ0376	Spring	P8	4	1
		FFPGC0174	No. 4 Mirror	P8	5	1
		FFPJC01871	Insulation Sheet	P8	6	1
		FFPGA0074	Lens	P8	7	1
		FFPKS06713	Adjusting Plate, Lens	P8	8	1
		FBA06A24U2CS	Fan Motor 2 (Option for FP-7713)	P8	9	1
		FFPKR16731	Bracket, Fan (FP-7715)	P8	10	1
		FFPKF12153	Optics Rail, Front	P8	11	1
		FFPKF12172	Harness Guide	P8	12	1
		FFPKD1240	Harness Holder	P8	13	2
		FFPKD12373	Glass Support, Front	P8	14	1
		FFPKD12541	Control Panel Stay	P8	15	1
		FFPKD12391	Rail Holder, Left	P8	16	2
		FFPKS0669	Adjusting Plate	P8	17	1
		FFPKD1242	Stopper Plate	P8	18	1
		FFPKF12163	Optics Rail, Rear	P8	19	1
		FFPWB0565	PCB Optics Drive	P8	20	1
		FFPWB05651	PCB Optics Drive (for Taiwan)	P8	20	1
		KGLS6S	Card Spacer	P8	21	3
		FFPHA00651	Duct	P8	22	1
		FBA08A24H2F0	Fan Motor 1	P8	23	1
		FFPKU0173	Support Plate, Right Cover (FP-7715)	P8	24	1
		FFPKD12384	Glass Support, Rear	P8	25	1
		EDS1	Edge Saddle	P8	26	1
		FFPKN0338	Glass Cushion (FP-7715)	P8	27	2
		E1815MRC	Ferrite Core (except North America)	P8	28	1
		FFPHK0927	Protection Sheet	P8	29	1
		XXE3D8FP	Set Screw	P8	30	1
		FFPKE1056	AE Sensor Case	P8	31	1
		FFPWB0580	PCB, AE Sensor	P8	32	1
		FFPWC1766	AE Harness	P8	33	1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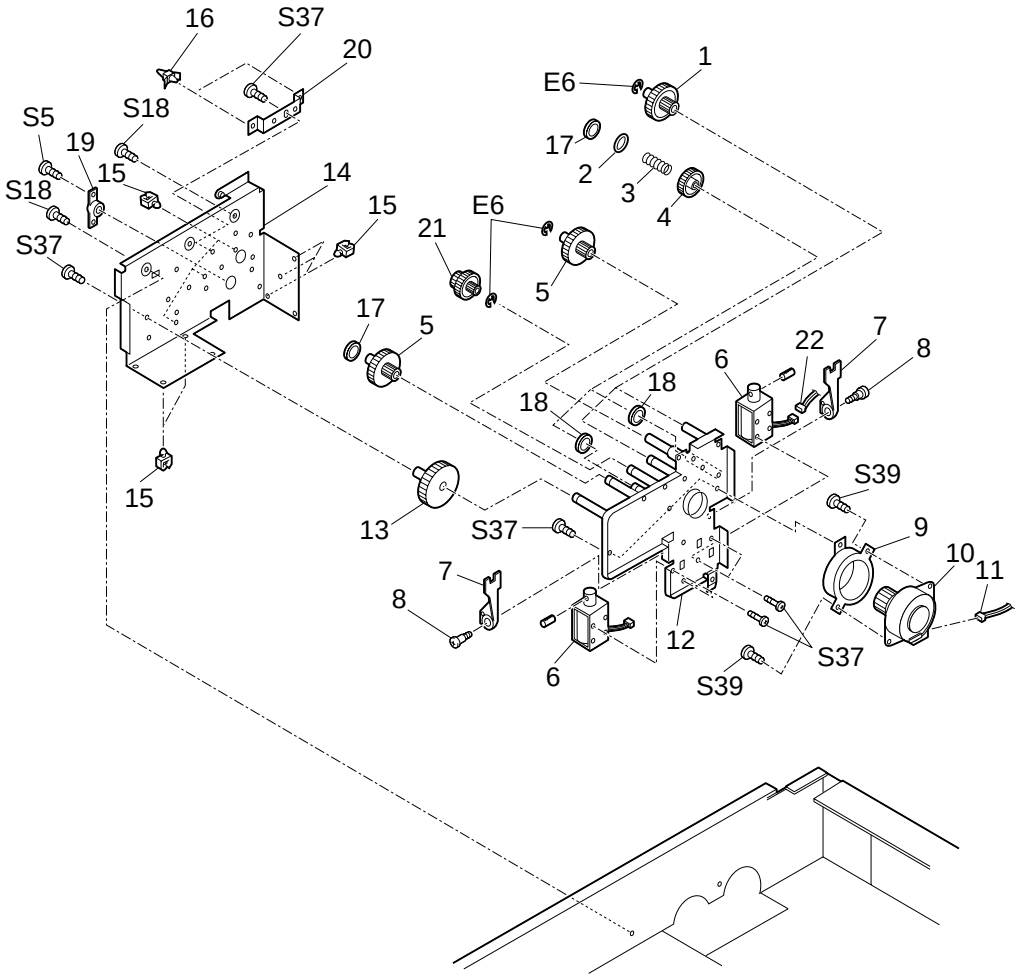
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPKB08758	Rear Frame	P9	1	1
		FFPXK19D80	Pulley Bracket, Right Ass'y	P9	2	2
		FFPMB0220	Pulley 1	P9	3	8
		FFPKQ01423	Flange	P9	4	8
		FFPMN0105	Belt, Half Speed Unit	P9	5	2
		FFPMN0104	Belt	P9	6	2
		FFPMV0004	Polyslider	P9	7	6
		FFPMB02212	Pulley	P9	8	2
		FFPLP1059	Tension Spring	P9	9	4
		FFPXK32D60	Tension Arm Ass'y	P9	10	2
		TLP1225	Sensor	P9	11	2
		FFPXK21D802	Shaft Ass'y, Half Speed Unit	P9	12	1
		FFPXK22D80	Shaft Ass'y	P9	13	1
		FFPMQ0532	Bushing	P9	14	1
		FFPKD12506	Front Stay, Optics	P9	15	1
		FFPKB08526	Bottom Plate, Right	P9	16	1
		FFPKD12514	Rear Stay, Optics	P9	17	1
		FFPXK33D60	Tension Arm Ass'y, Front	P9	18	1
		FFPKB08748	Front Frame	P9	19	1
		FFPKD1241	Harness Holder	P9	20	1
		FFPXK17D80	Pulley Bracket, Left Ass'y	P9	21	2
		FFPKB08832	Bottom Plate, Left	P9	22	1
		FFPDU0063	Discharge Brush	P9	23	1
		FFPWC1533	LPF Harness	P9	24	1
		FFPXK34D60	Tension Arm Ass'y, Rear	P9	25	1
		FFPFJ0033	Touch Ring	P9	26	1
		FFPFA0121	Shoulder Screw	P9	27	2
		FFPMQ0601	Bushing	P9	28	2
		FFPLQ04081	Pressure Spring, Pad	P9	29	2
		FFPKD1283	Bracket, Half Speed Unit	P9	30	2
		FFPWC1546	LHP Harness	P9	31	1
		FFPFJ0042	Touch Ring	P9	32	4
		FFPMB02231	Tension Roller	P9	33	4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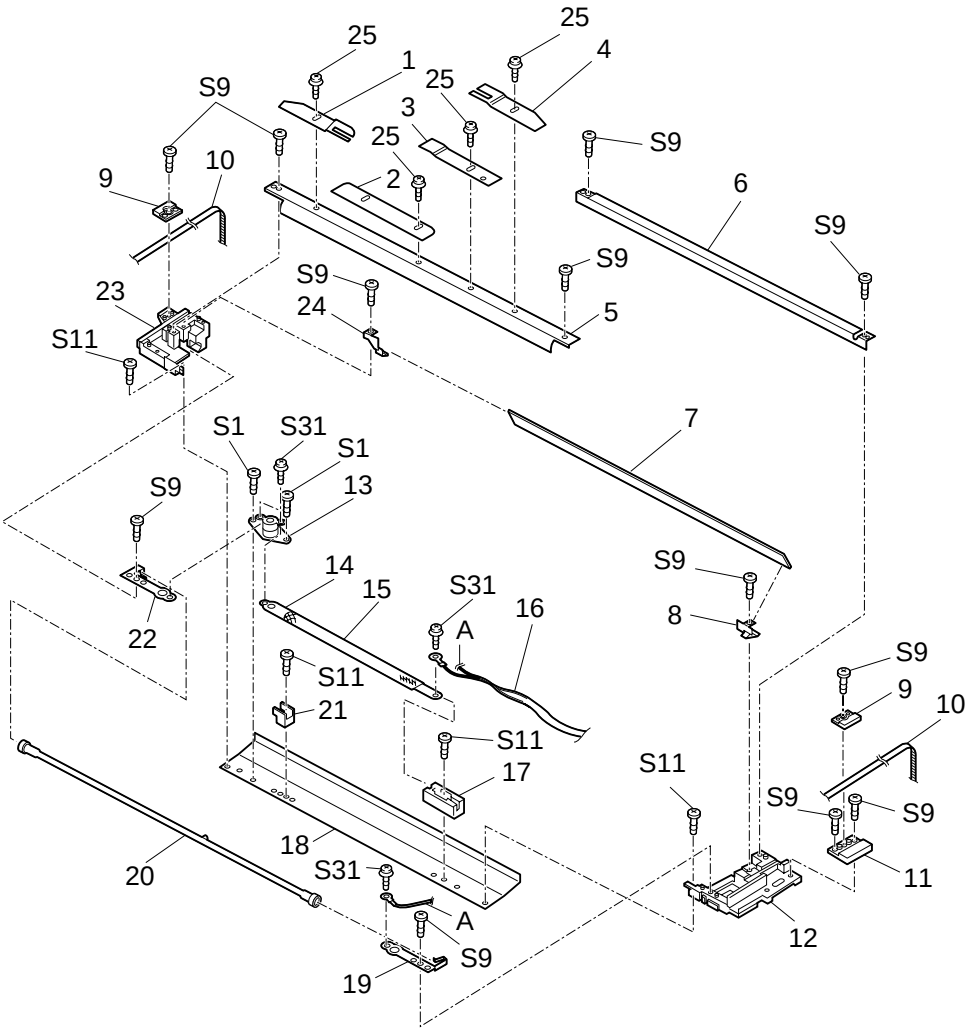
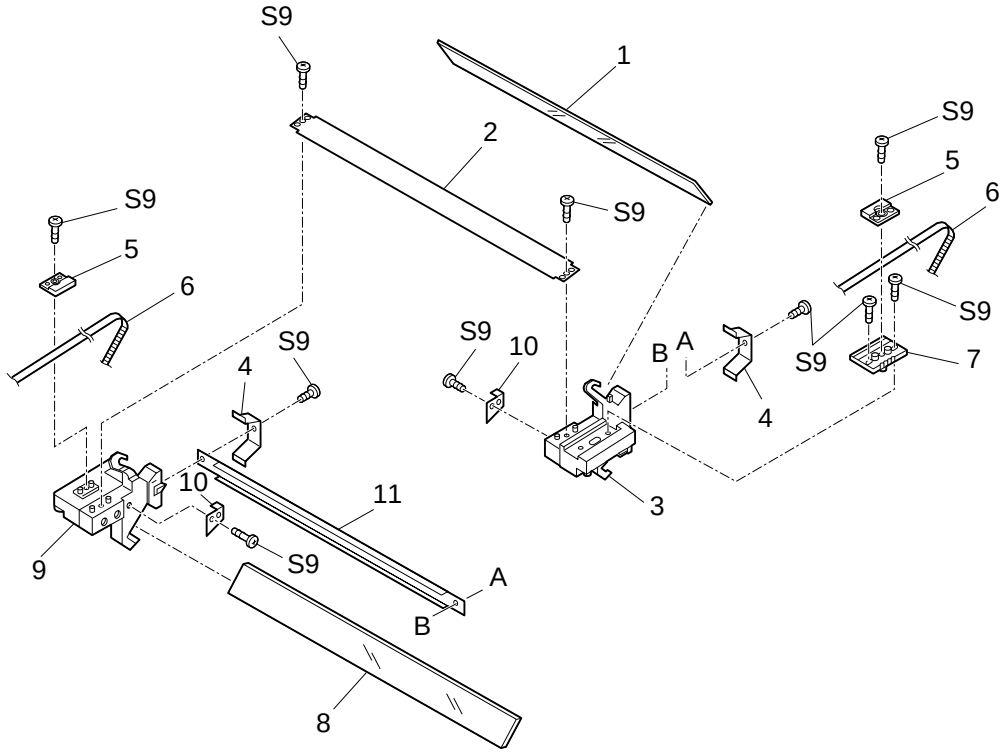
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPMF09331	Gear, Idle 2	P10	1	2
		FFPMV0030	Polyslider	P10	2	2
		FFPLP09371	Selection Spring	P10	3	2
		FFPMF0932	Gear, Idle 1	P10	4	2
		FFPMF0934	Gear, Idle 3	P10	5	2
		FFPXK30D80	Solenoid Ass'y	P10	6	2
		FFPLL0532	Selection Lever	P10	7	2
		FFPLG09411	Slide Shaft Screw	P10	8	2
		FFPHL0010	Damper	P10	9	1
		FFPXK27D80	Motor Ass'y	P10	10	1
		FFPWC1539	LM Harness	P10	11	1
		FFPWC1722	LMD Harness (for Taiwan)	P10	11	1
		FFPKB08763	Motor Frame 1	P10	12	1
		FFPMF09291	Gear, Idle 4	P10	13	1
		FFPKB08594	Motor Frame 2	P10	14	1
		UAMS05S2	Clamp	P10	15	8
		KGLS3S	Card Spacer	P10	16	2
		FFPHP0735	Cushion	P10	17	3
		FFPHP0736	Cushion	P10	18	2
		FFPMQ0525	Motor Bushing	P10	19	1
		FFPKR16721	Bracket, PCB	P10	20	1
		FFPMF0976	Gear, Idle 5	P10	21	1
		FFPWC1721	ZM Harness (for Taiwan)	P10	22	1

Optics-1 (lens)

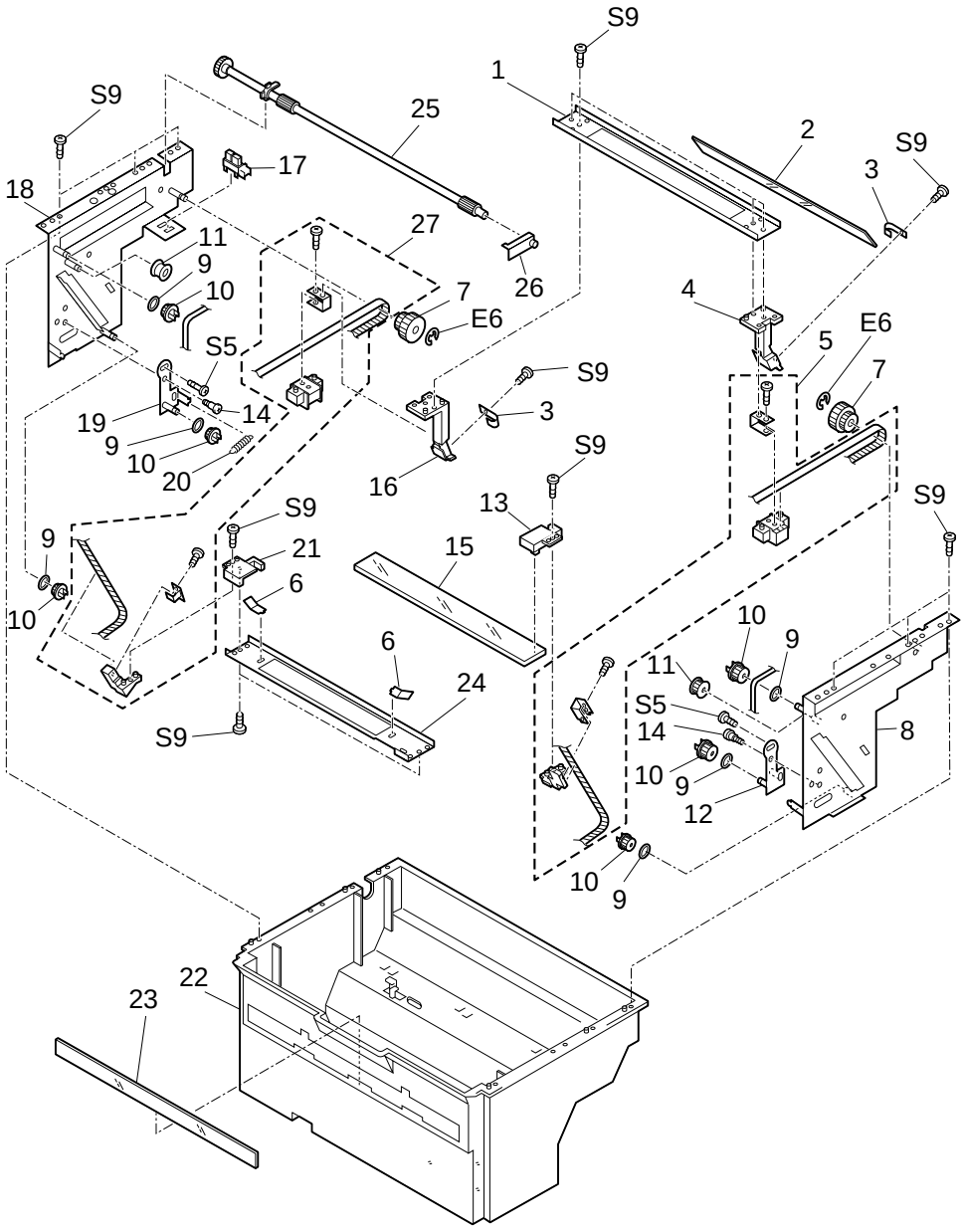


PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPJC02181	Adjust Plate 4, Optics	P11	1	1
		FFPJC0217	Adjust Plate 3, Optics	P11	2	1
		FFPJC02161	Adjust Plate 2, Optics	P11	3	1
		FFPJC02151	Adjust Plate 1, Optics	P11	4	1
		FFPGC0176	Main Reflector, Upper	P11	5	1
		FFPGC0178	Sub Reflector	P11	6	1
		FFPGC0179	No. 1 Mirror	P11	7	1
		FFPLQ03771	Spring	P11	8	1
		FFPKD1243	Belt Holder 1	P11	9	2
		FFPMN0104	Belt	P11	10	2
		FFPKD1244	Belt Holder 2	P11	11	1
		FFPKQ01432	Side Frame, Front	P11	12	1
		FFPET0013	Thermostat	P11	13	1
		FFPDF0254	Terminal Plate	P11	14	1
		FFPEZ0202	Tube	P11	15	1
		FFPWC1553	LP Harness	P11	16	1
		FFPDE0070	Lamp Bracket, Front	P11	17	1
		FFPGC01771	Main Reflector, Lower	P11	18	1
		FFPDF02533	Lamp Terminal, Front	P11	19	1
		E08V025WN2A	Exposure Lamp (for North America/Taiwan)	P11	20	1
		E16V025WN2A	Exposure Lamp (Others)	P11	20	1
		FFPDE0071	Lamp Bracket, Rear	P11	21	1
		FFPDF02552	Lamp Terminal, Rear	P11	22	1
		FFPKQ01442	Side Frame, Rear	P11	23	1
		FFPLQ03781	Spring	P11	24	1
		FFPFA0111	Shoulder Screw	P11	25	4

Optics-1 (lens)



PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPGC0180	No. 2 Mirror	P12	1	1
		FFPKS0994	Connection Plate	P12	2	1
		FFPKQ01452	Side Frame, Front	P12	3	1
		FFPLQ0379	Spring	P12	4	2
		FFPKD1243	Belt Holder 1	P12	5	2
		FFPMN0105	Belt, Half Speed Unit	P12	6	2
		FFPKD1244	Belt Holder 2	P12	7	1
		FFPGC0181	No. 3 Mirror	P12	8	1
		FFPKQ01461	Side Frame, Rear	P12	9	1
		FFPKD12711	Mirror Support	P12	10	2
		FFPKU00952	Support, Half Speed Unit	P12	11	1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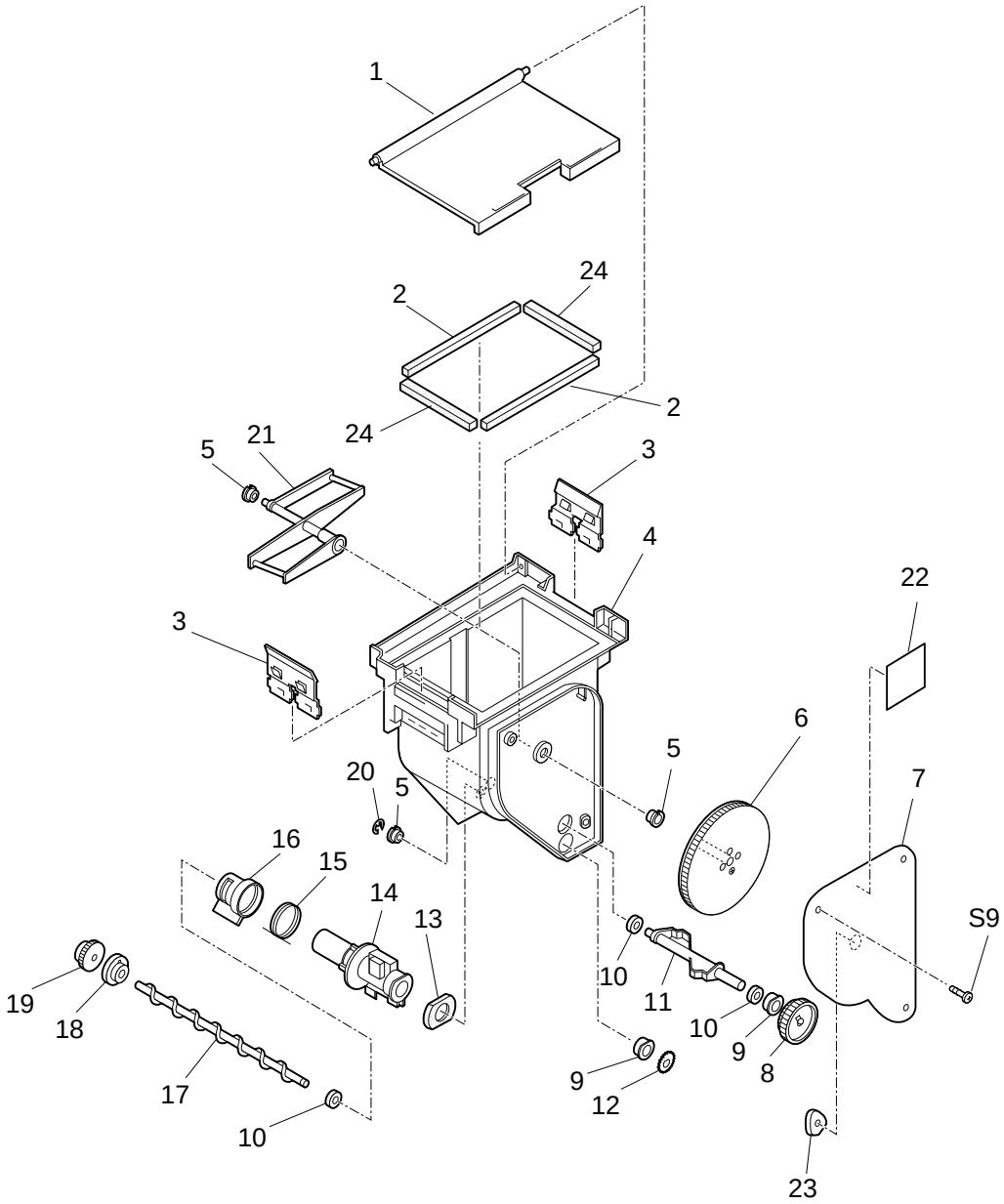
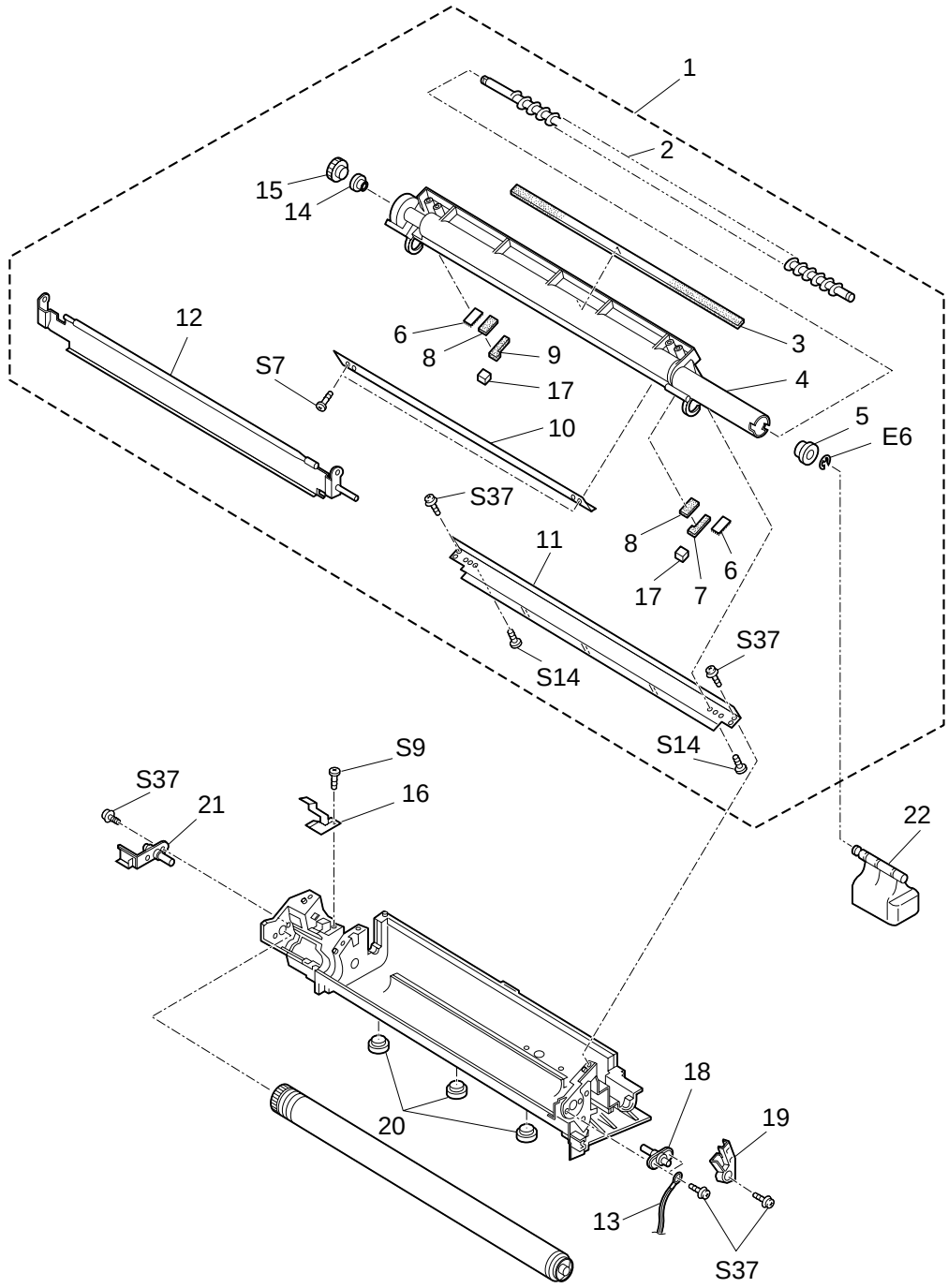
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPKS09961	Support, No. 6 Mirror	P13	1	1
		FFPGC0183	No. 6 Mirror	P13	2	1
		FFPLQ03831	Pressure Spring	P13	3	2
		FFPKD12471	No. 6 Mirror Holder, Front	P13	4	1
		FFPXK03D80	5/6 Belt, Front Ass'y	P13	5	1
		FFPLQ03801	Pressure Spring	P13	6	2
		FFPMB0228	Pulley	P13	7	2
		FFPXK01D60	Drive Bracket, Front Ass'y	P13	8	1
		FFPKQ0150	Flange	P13	9	6
		FFPMB02251	Pulley	P13	10	6
		FFPMB02261	Pulley	P13	11	2
		FFPXK02D80	5/6 Tension Plate, Front Ass'y	P13	12	1
		FFPKD12452	No. 5 Mirror Holder, Front	P13	13	1
		FFPFA0020	Shoulder Screw	P13	14	2
		FFPGC0182	No. 5 Mirror	P13	15	1
		FFPKD12481	No. 6 Mirror Holder, Rear	P13	16	1
		TLP1225	Sensor	P13	17	1
		FFPXK05D60	Drive Bracket, Rear Ass'y	P13	18	1
		FFPXK06D80	5/6 Tension Plate, Rear Ass'y	P13	19	1
		FFPLP0958	Tension Spring	P13	20	1
		FFPKD12462	No. 5 Mirror Holder, Rear	P13	21	1
		FFPKE09645	Optics Unit Cover	P13	22	1
		FFPGC0184	Cover Glass	P13	23	1
		FFPKS09951	Support, No. 5 Mirror	P13	24	1
		FFPXK12D80	Connection Shaft Ass'y	P13	25	1
		FFPMQ05052	Bushing	P13	26	1
		FFPXK07D80	5/6 Belt, Rear Ass'y	P13	27	1

Toner hopper unit

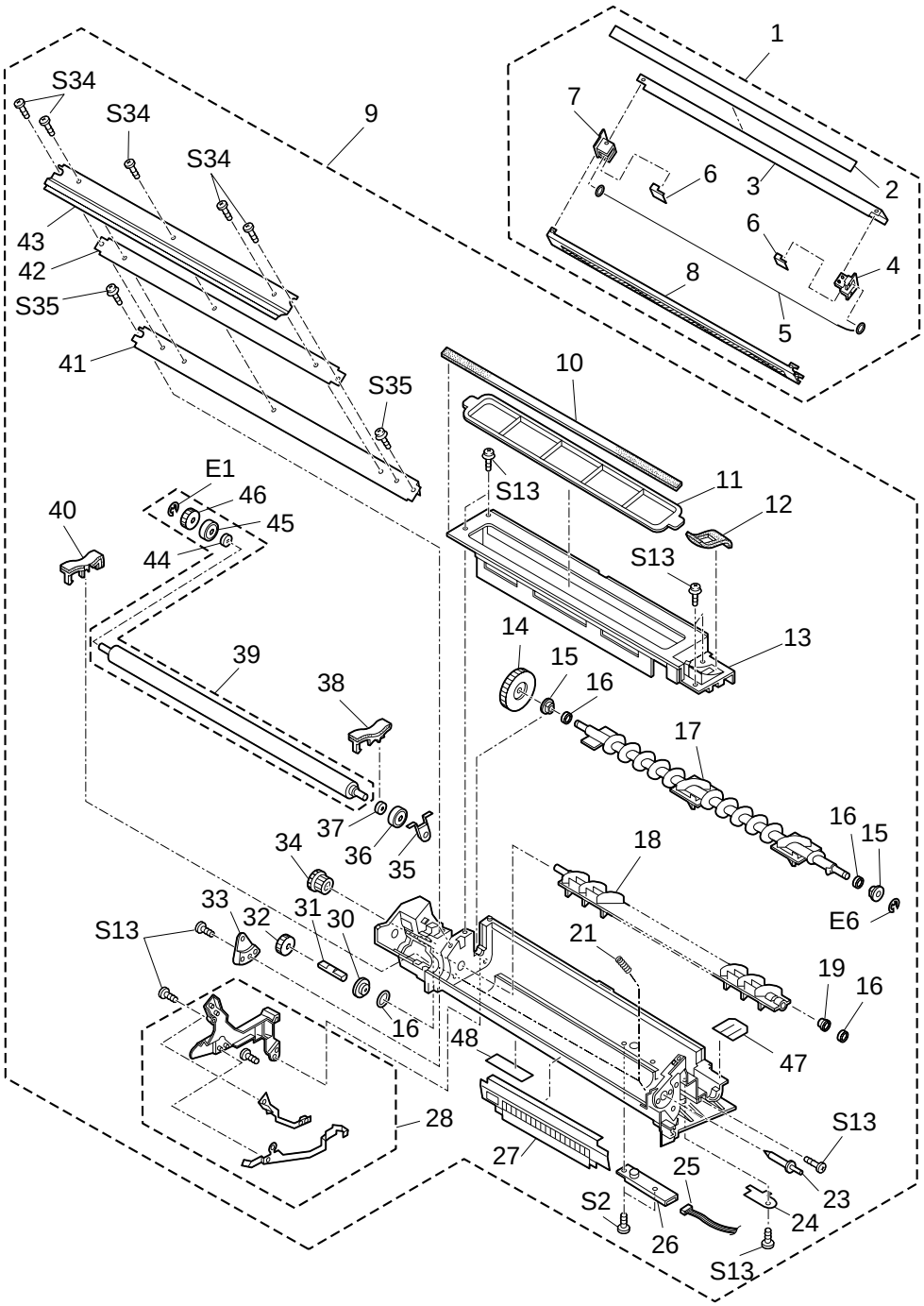


PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPKE0973	Inner Hopper Cover	P14	1	1
		FFPHP0785	Side Seal B	P14	2	2
		FFPKF12211	Stopper	P14	3	2
		FFPKB08681	Hopper Frame	P14	4	1
		FFPMQ0376	Bushing	P14	5	3
		FFPMF0952	Gear	P14	6	1
		FFPKE09791	Gear Cover	P14	7	1
		FFPMF0953	Gear	P14	8	1
		FFPMQ0512	Bushing	P14	9	2
		FFPHP0724	Bushing Seal	P14	10	3
		FFPLG1409	Shaft	P14	11	1
		FFPMF0954	Gear	P14	12	1
		FFPHP0722	Pipe Seal	P14	13	1
		FFPHD00211	Pipe, Toner Supply	P14	14	1
		FFPLP0949	Shutter Spring	P14	15	1
		FFPKM02752	Pipe Shutter	P14	16	1
		FFPHG00451	Coil, Toner Supply	P14	17	1
		FFPMQ0513	Bushing	P14	18	1
		FFPMF0955	Coil Gear, Rear	P14	19	1
		FFPFJ0033	Touch Ring	P14	20	1
		FFPHH00781	Agitator	P14	21	1
		FFPTE2020	Label, Prohibition Waste Toner	P14	22	1
		FFPHP0733	Sponge, Gear Cover	P14	23	1
		FFPHP0784	Side Seal A	P14	24	2

Developer unit



PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPXG10D60	Cleaning Frame Ass'y (for Taiwan)	P15	1	1
		FFPXG10D61	Cleaning Frame Ass'y	P15	1	1
		FFPHG0044	Recycle Coil	P15	2	1
		FFPHP0714	Seal 1	P15	3	1
		FFPKB08673	Cleaning Frame	P15	4	1
		FFPMQ0509	Bushing	P15	5	1
		FFPHP0717	Seal 4	P15	6	2
		FFPHP0716	Seal 3	P15	7	1
		FFPHP0715	Seal 2	P15	8	2
		FFPHP0719	Seal 5	P15	9	1
		FFPKD12571	Stay	P15	10	1
		FFPHK09051	Cleaning Blade	P15	11	1
		FFPXG14D802	Drum Cover Ass'y	P15	12	1
		FFPWC1723	TS Harness	P15	13	1
		FFPMQ0276	Bushing	P15	14	1
		FFPMF0951	Coil Gear	P15	15	1
		FFPDF02612	Grid Lead	P15	16	1
		FFPHP0730	Seal 6	P15	17	2
		FFPLG1407	Drum Shaft, Front	P15	18	1
		FFPKD1258	Discharge Holder	P15	19	1
		FFPLA0090	Cap	P15	20	3
		FFPLG14081	Drum Shaft, Rear	P15	21	1
		FFPQA0143	Waste Toner Bottle	P15	22	1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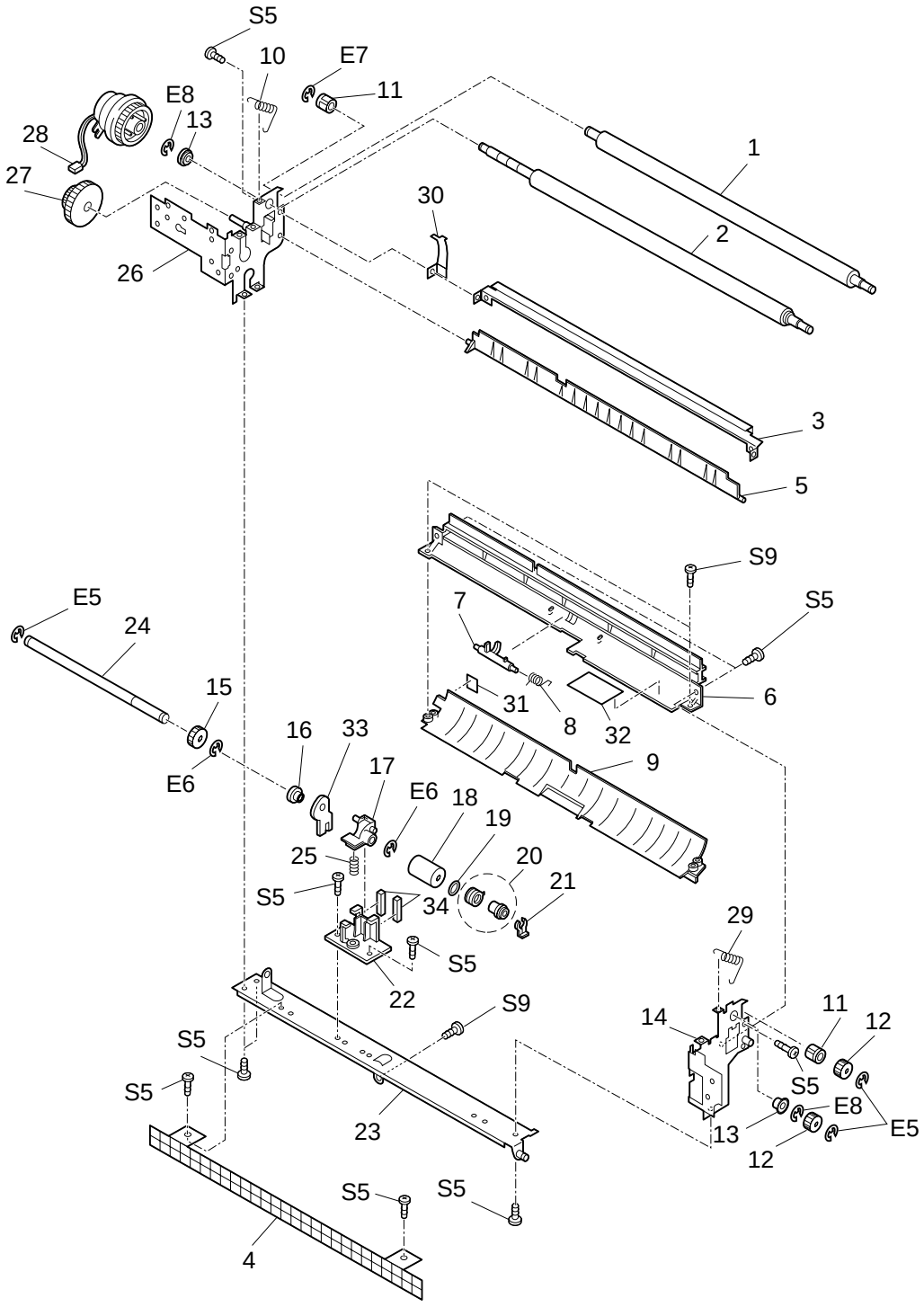
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPXG07D801	Corona No.1 Ass'y	P16	1	1
		FFPHK0908	Blind Sheet	P16	2	1
		FFPJA0270	Frame, No.1 Corona	P16	3	1
		FFPKQ01581	Corona Block 1	P16	4	1
		FFPEY00641	Corona Wire	P16	5	1
		FFPJA0271	Corona Cover 1	P16	6	2
		FFPXG06D80	Corona Block 2	P16	7	1
		FFPKQ0160	Corona Grid	P16	8	1
		FFPXG12D811	Developer Unit Ass'y	P16	9	1
		FFPXG12D87	Developer Unit Ass'y (for Taiwan)	P16	9	1
		FFPHP0718	Seal, Frame Cover	P16	10	1
		FFPQF0033	Cap	P16	11	1
		FFPHP07132	Hopper Seal	P16	12	1
		FFPKE09711	Frame Cover	P16	13	1
		FFPMF0949	Transfer Gear	P16	14	1
		FFPMQ0166	Bushing	P16	15	2
		FFPHP05531	G Seal	P16	16	4
		FFPHG00431	Supply Coil	P16	17	1
		FFPKS10012	String Paddle	P16	18	1
		FFPMQ0510	Bushing	P16	19	1
		FFPLP0948	Pressure Spring	P16	21	2
		FFPLG1406	Paddle Shaft 2	P16	23	1
		FFPKE0969	Sensor Cover	P16	24	1
		FFPWC1551	TDC Harness	P16	25	1
		TS0524ANA71C	TDC Sensor	P16	26	1
		FFPXG11D801	Cover Ass'y	P16	27	1
		FFPXG08D801	Terminal Case Ass'y	P16	28	1
		FFPMQ0166	Bushing	P16	30	1
		FFPLG1405	Paddle Shaft 1	P16	31	1
		FFPMF0948	Gear, Paddle	P16	32	1
		FFPMQ0508	Bushing	P16	33	1
		FFPMF0950	Gear, Idle 1	P16	34	1
		FFPMF0974	Gear, Idle 1 (for Taiwan)	P16	34	1
		FFPKQ01531	Support, Magnetic Pole	P16	35	1
		FFPHQ00441	Spacer Ring, Front	P16	36	1
		FFPHQ0047	Spacer Ring, Front (for Taiwan)	P16	36	1
		FFPHQ0045	Bushing	P16	37	1
		FFPKQ01632	Magnetic Roller Stopper, Front	P16	38	1
		FFPXG02D801	Magnetic Roller Ass'y (for Taiwan)	P16	39	1
		FFPXG02D81	Magnetic Roller Ass'y	P16	39	1
		FFPKQ01642	Magnetic Roller Stopper, Rear	P16	40	1
		FFPKD1265	Blade Stay	P16	41	1
		FFPHK0904	Doctor Blade	P16	42	1
		FFPKE0968	Cover, Toner Dispersion	P16	43	1
		FFPMQ0507	Bearing	P16	44	1
		FFPHQ00431	Spacer Ring, Rear	P16	45	1
		FFPHQ0048	Spacer Ring, Rear (for Taiwan)	P16	45	1
		FFPMF0947	Magnetic Roller Gear	P16	46	1
		FFPMF0973	Magnetic Roller Gear (for Taiwan)	P16	46	1
		FFPHK09111	Mylar	P16	47	1
		FFPHK09141	Sheet	P16	48	1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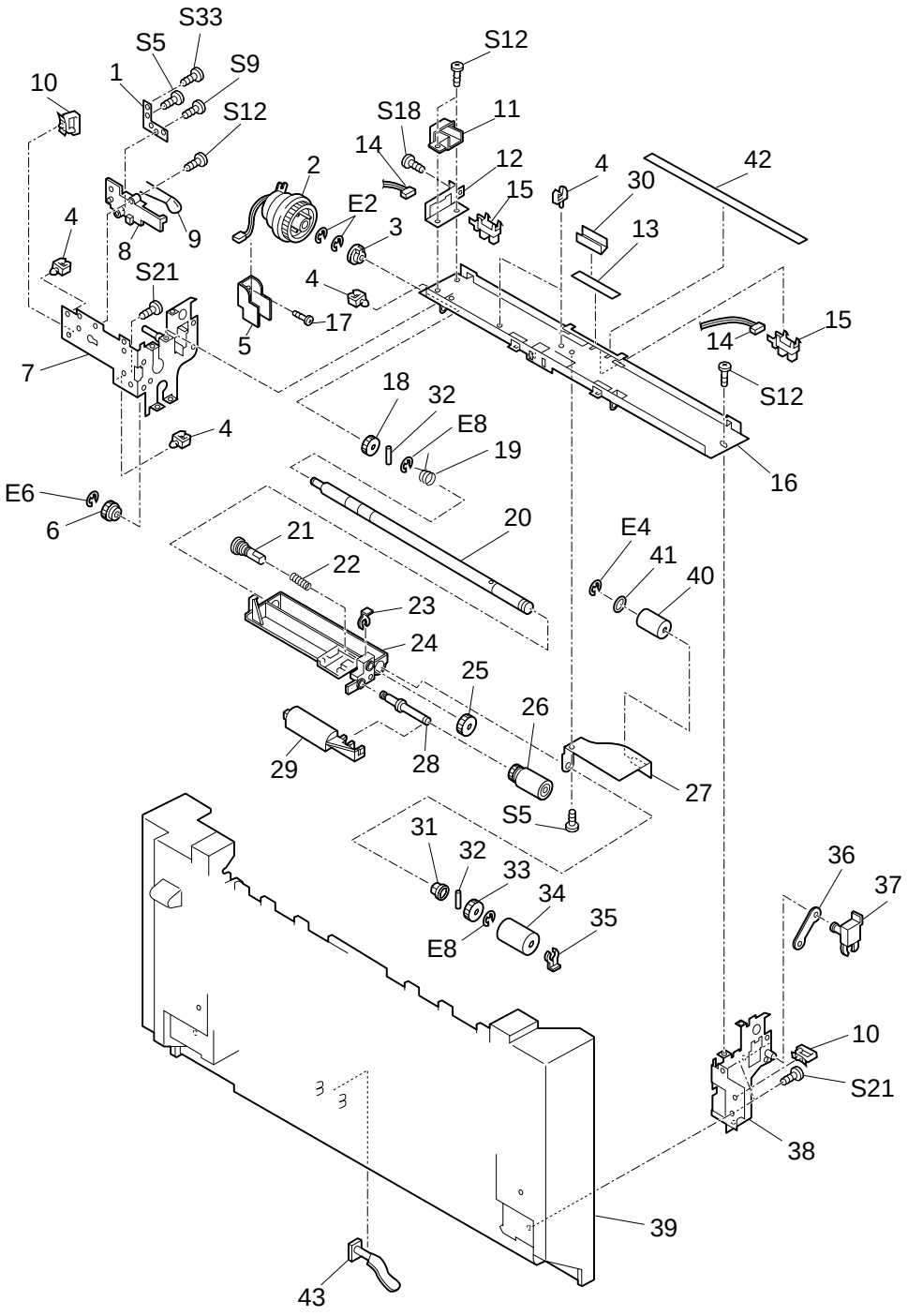
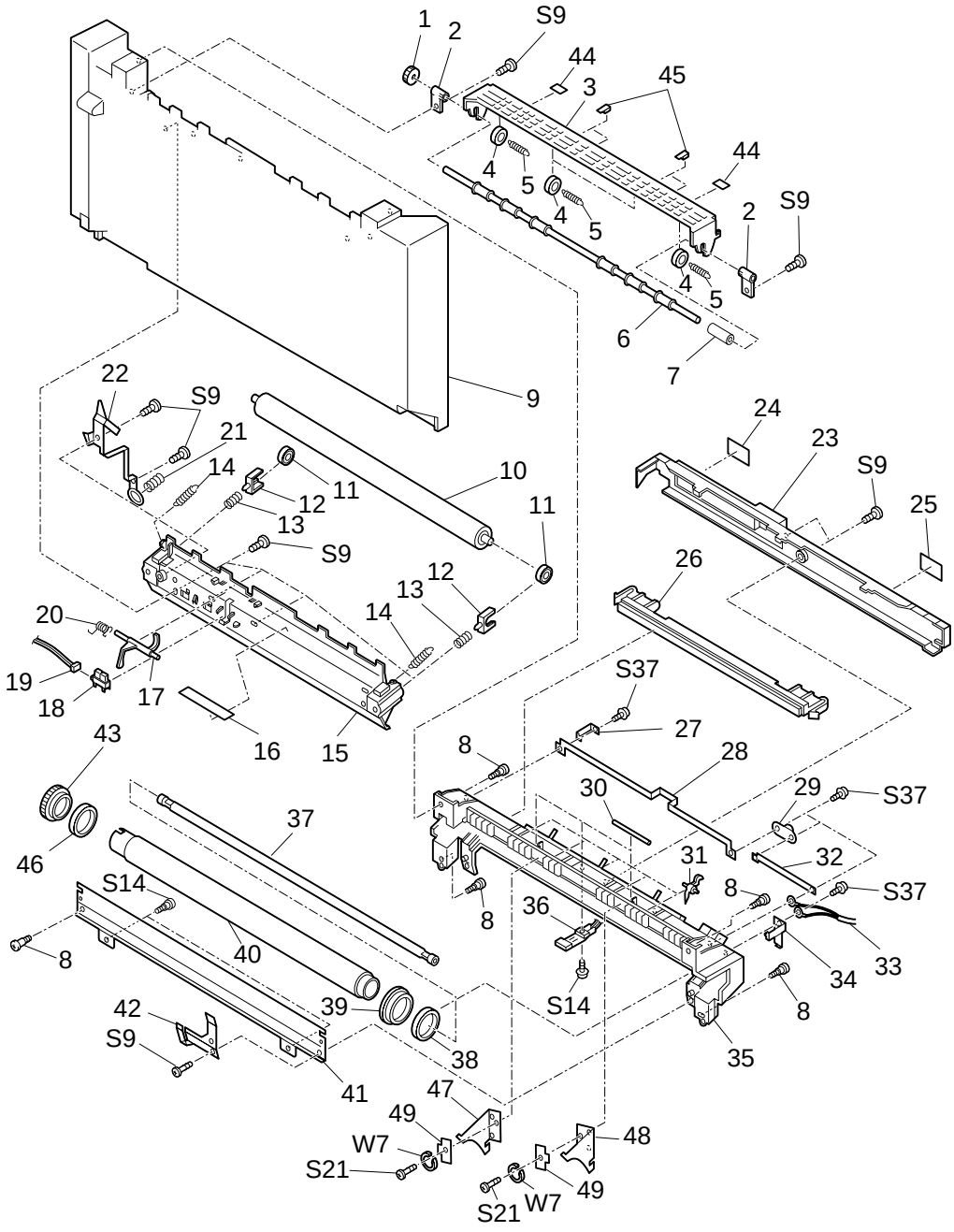
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPMA0600	Registration Roller (Rubber)	P17	1	1
		FFPMA0598	Registration Roller (Steel)	P17	2	1
		FFPXF18D804	Cleaning Pad Ass'y	P17	3	1
		FFPKF12481	Paper Guide 2 (FP-7715)	P17	4	1
		FFPKF1229	Flapper Plate	P17	5	1
		FFPKF12282	Paper Guide 3	P17	6	1
		FFPLL05382	Sensor Lever	P17	7	1
		FFPLR02582	Spring	P17	8	1
		FFPKF12271	Paper Guide 2	P17	9	1
		FFPLP09521	Pressure Spring	P17	10	1
		FFPMQ0515	Bushing	P17	11	2
		FFPMF0724	Gear, Registration Roller	P17	12	2
		FFPMQ04511	Bushing (FP-7713)	P17	13	2
		FFPMQ0517	Bearing (FP-7715)	P17	13	2
		FFPKB08732	Front Frame, Bypass	P17	14	1
		FFPMF09661	Gear, DFP Shaft	P17	15	1
		FFPMQ0521	Bushing	P17	16	1
		FFPLK0310	DFP Arm	P17	17	1
		FFPMA0520	DFP Roller	P17	18	1
		FFPMV0044	Polyslider	P17	19	1
		FFPXF21D80	Torque Limiter Ass'y	P17	20	1
		FFPFJ0033	Touch Ring	P17	21	1
		FFPKD12623	DFP Holder	P17	22	1
		FFPKD1272	DFP Stay	P17	23	1
		FFPLG1416	DFP Shaft	P17	24	1
		FFPLP09531	Pressure Spring	P17	25	1
		FFPXF11D80	Rear Frame, Bypass	P17	26	1
		FFPXF11D81	Rear Frame, Bypass (for North America)	P17	26	1
		FFPMF09591	Gear, Idle 39T/26T	P17	27	1
7713-01-97	BJ-3.5-W03	BJ-3.5-W04	Magnetic Clutch Ass'y (FP-7713)	P17	28	1
		BJ-3.5-W04	Magnetic Clutch 2 Ass'y (FP-7715)	P17	28	1
		FFPLP1058	Pressure Spring	P17	29	1
		FFPLQ0402	Cover Terminal	P17	30	1
		FFPHP06511	Seal 10	P17	31	1
		FFPKS1021	Plate, Anti-vibration	P17	32	1
		FFPKF1236	Stopper, DFP Roller Shaft	P17	33	1
		FFPKP00781	Pad 2	P17	34	2

Paper feed unit-1

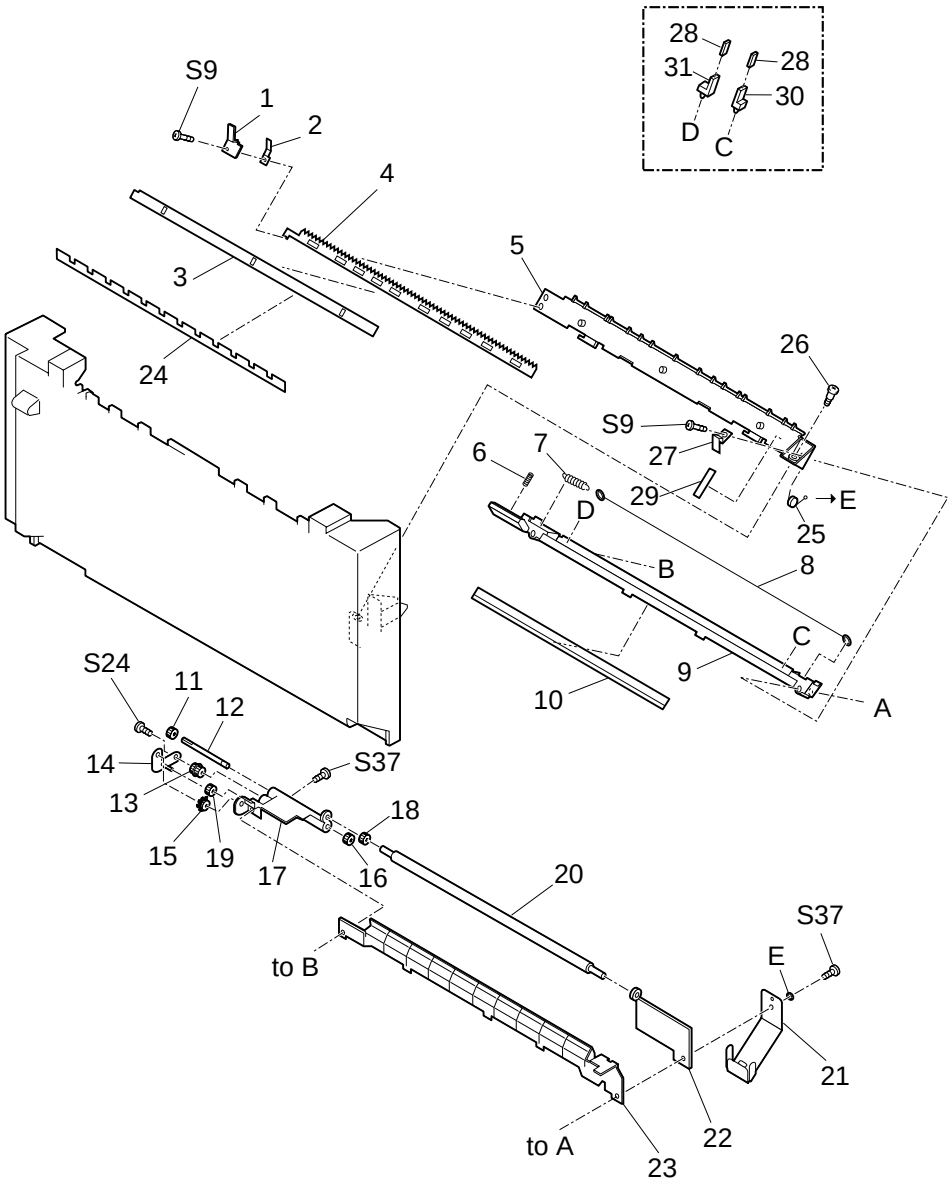


PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPUF01D61	Left Cover Ass'y (FP-7713 for North America)	P18	0	1
		FFPUF01D63	Left Cover Ass'y (FP-7713 for others)	P18	0	1
		FFPUF01D67	Left Cover Ass'y (FP-7113 for Taiwan)	P18	0	1
		FFPUF01G41	Left Cover Ass'y (FP-7715 for North America)	P18	0	1
		FFPUF01G43	Left Cover Ass'y (FP-7715 for others)	P18	0	1
		FFPUF01G47	Left Cover Ass'y (FP-7115 for Taiwan)	P18	0	1
		FFPDF0263	Ground Plate	P18	1	1
7713-01-97	BJ-3.5-W04	BJ-3.5-W03	Magnetic Clutch 2 Ass'y (FP-7715)	P18	2	1
		BJ-3.5-W03	Magnetic Clutch Ass'y (FP-7713)	P18	2	1
		FFPMQ0516	Bushing	P18	3	1
		UAMS05S2	Clamp	P18	4	5
		FFPKF13731	Clutch Stopper 1	P18	5	1
		FFPMF0787	Idle Gear	P18	6	1
		FFPKB08771	Rear Frame, Paper Feed	P18	7	1
		FFPKH0303	Insulation Spacer	P18	8	1
		ERZV10D751	ZNR	P18	9	1
		LWS1S	LWS	P18	10	2
		FFPJA0277	Harness Guide	P18	11	1
		FFPKU01631	Support	P18	12	1
		FFPKP00741	Cleaning Pad (FP-7713)	P18	13	1
		FFPKP0081	Cleaning Pad (FP-7713)	P18	13	1
		FFPWC1545	KB Harness (FP-7713)	P18	14	1
		FFPWC1572	KB Harness (FP-7715)	P18	14	1
		TLP1225	Sensor (FP-7713)	P18	15	1
		TLP1225	Sensor (FP-7715)	P18	15	2
		FFPKD12611	Roller Stay, Paper Feed	P18	16	1
		FFPFA0151	Shoulder Screw	P18	17	1
		FFPMF0965	Gear, DFP Drive 16T	P18	18	1
		FFPLR0257	Spring	P18	19	1
		FFPLG15731	Paper Feed Shaft 3	P18	20	1
		FFPMD0026	Boss	P18	21	1
		FFPLR02562	Spring	P18	22	1
		FFPFJ0033	Touch Ring	P18	23	1
		FFPKR16611	Bracket, Pick up Roller	P18	24	1
		FFPMF0960	Gear, Pick up Idle	P18	25	1
		FFPMA0521	Pick up Roller	P18	26	1
		FFPKS1020	Bracket, Paper Feed Roller	P18	27	1
		FFPLG1418	Pick up Roller Shaft	P18	28	1
		FFPKD12641	Finger Support	P18	29	1
		FFPKN03731	Cleaning Pad	P18	30	1
		FFPMQ0383	Bushing	P18	31	1
		XPJ2D10WV	Pin	P18	32	2
		FFPMF0958	Gear, Pick up Drive	P18	33	1
		FFPMA0518	Paper Feed Roller	P18	34	1
		FFPFJ0039	Touch Ring	P18	35	1
		FFPLK0312	Tray Arm 2 (except North America)	P18	36	1
		FFPLK03111	Tray Arm 1 (except North America)	P18	37	1
		FFPKB08732	Front Frame, Bypass	P18	38	1
		FFPNA05675	Left Cover	P18	39	1
		FFPMQ0400	Roller Clutch	P18	40	1
		FFPMV0004	Polyslider	P18	41	1
		FFPKP0081	Cleaning Pad	P18	42	1
		FFPLL05481	Sensor Lever (FP-7715)	P18	43	1

Fuser section



PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPMF0946	Gear, Exit Roller	P19	1	1
		FFPMQ0506	Bushing	P19	2	2
		FFPKF12202	Guide 1	P19	3	1
		FFPMA05151	Exit Roller 2	P19	4	4
		FFPLP09461	Roller Spring	P19	5	4
		FFPMA05142	Exit Roller	P19	6	1
		FFPLT0121	Holder, Exit Roller 2	P19	7	1
		FFPFA0138	Shoulder Screw	P19	8	5
		FFPNA05675	Left Cover	P19	9	1
		FFPMA0523	Pressure Roller	P19	10	1
		FFPMQ0520	Bearing	P19	11	2
		FFPMQ0518	Bearing Holder	P19	12	2
		FFPLP09551	Pressure Spring	P19	13	2
		FFPLP09471	Spring	P19	14	2
		FFPLF01763	Heat-insulating Cover	P19	15	1
		FFPDU0064	Discharge Brush	P19	16	1
		FFPLK0306	Sensor Arm	P19	17	1
		TLP1225	Sensor	P19	18	1
		FFPWC1536	SHPS Harness	P19	19	1
		FFPLR0252	Spring	P19	20	1
		FFPLP09432	Pressure Spring 1	P19	21	1
		FFPDF02572	Ground Terminal	P19	22	1
		FFPKE09783	Fuser Cover	P19	23	1
		FFPTE1677	Caution Label, High Temperature	P19	24	1
		FFPTE19342	Label, Paper Jam	P19	25	1
		FFPKM02785	Cleaning Pad	P19	26	1
		FFPDF0267	Bracket, Lamp Terminal 2	P19	27	1
		FFPDF0266	Electric Plate 2	P19	28	1
		FFPET0014	Thermostat	P19	29	1
		FFPLN0005	Finger Spring	P19	30	2
		FFPLK0336	Finger	P19	31	4
		FFPDF0265	Electric Plate 1	P19	32	1
		FFPWC1554	FU Harness	P19	33	1
		FFPDF0264	Bracket, Lamp Terminal 1	P19	34	1
		FFPKB087211	Fuser Frame	P19	35	1
		FFPBL0013	Thermistor	P19	36	1
		H12V1KWN1A	Lamp (for North America/Taiwan)	P19	37	1
		H22V1KWN1A	Lamp (except North America/Taiwan)	P19	37	1
		FFPMQ0523	Bearing	P19	38	1
		FFPMQ0524	Bushing	P19	39	1
		FFPMA05242	Heat Roller	P19	40	1
		FFPKF12311	Front Guide	P19	41	1
		FFPDF02682	Ground Plate	P19	42	1
		FFPMF09611	Gear, Heat Roller	P19	43	1
		FFPHK1006	Sheet	P19	44	2
		FFPKN0340	Paper Exit Rubber (for Taiwan/China)	P19	45	4
		FFPMQ0529	Bushing	P19	46	1
		FFPKF12502	Rib 1 (for Taiwan/China)	P19	47	1
		FFPKF12512	Rib 2 (for Taiwan/China)	P19	48	1
		FFPKD12982	Plate (for Taiwan/China)	P19	49	2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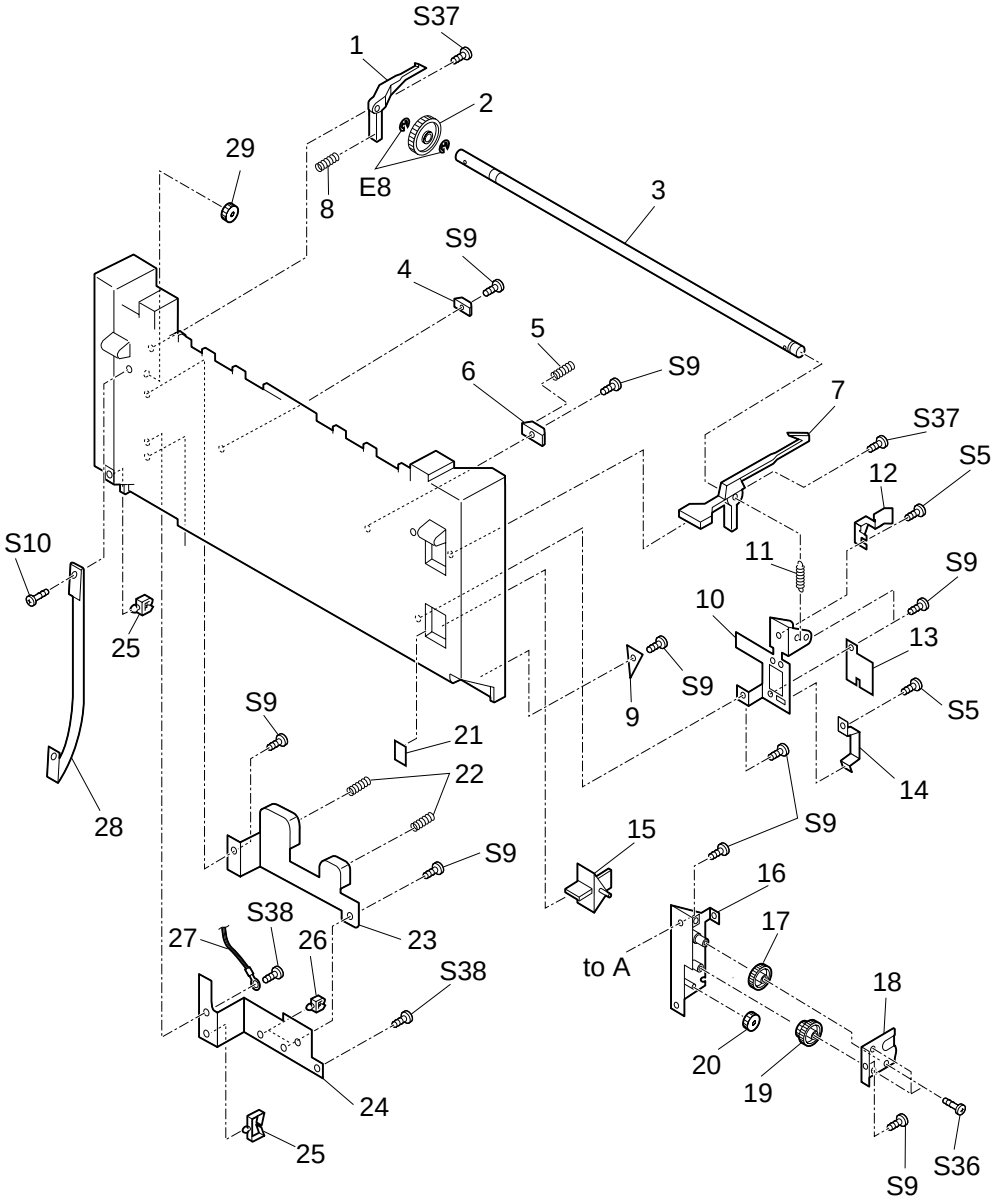
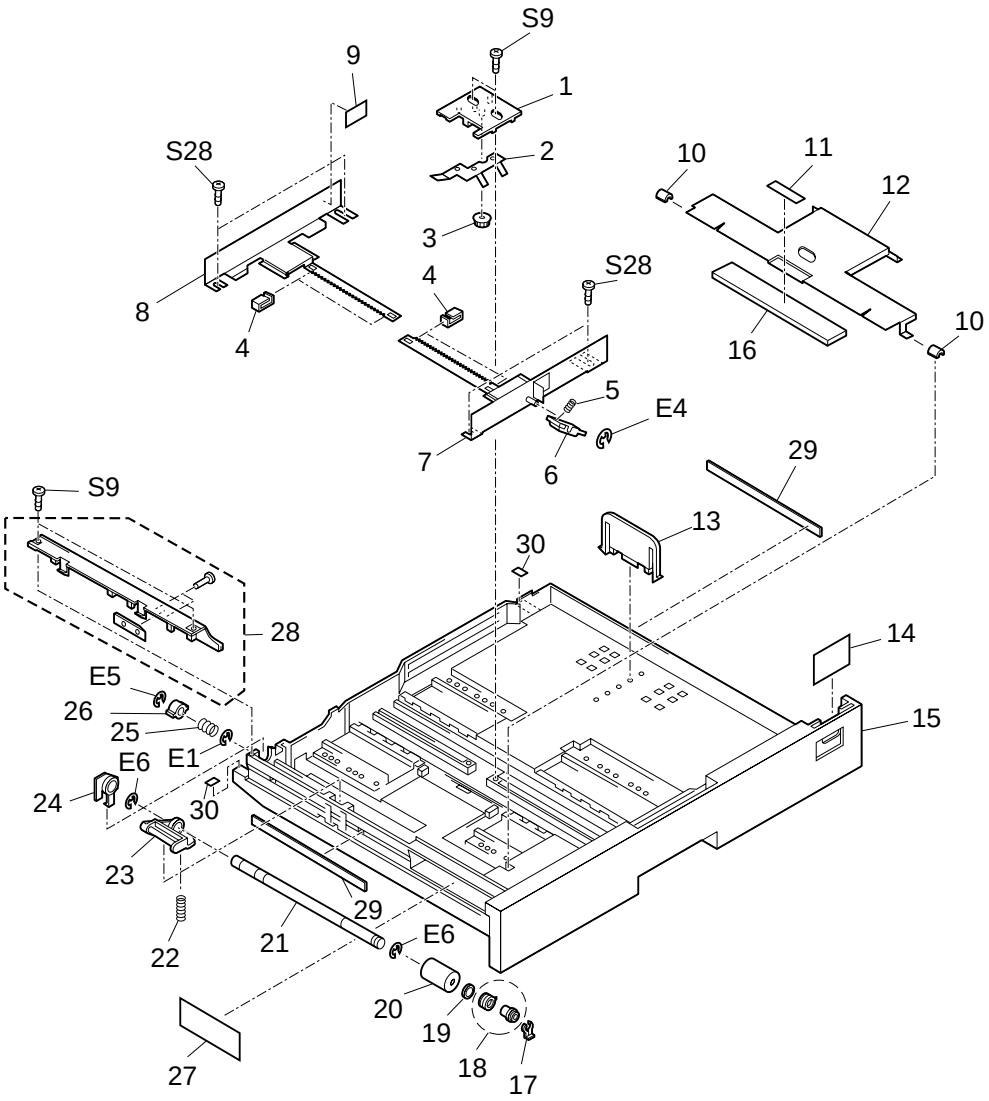
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPXF10D611	Corona No. 2/3 Ass'y	P20	0	1
		FFPXF10D67	Corona No. 2/3 Ass'y (for Taiwan)	P20	0	1
		FFPKD12561	Plate, Discharge Needle	P20	1	1
		FFPDF0256	Terminal 2	P20	2	1
		FFPHK0903	Mylar, Discharge Needle	P20	3	1
		FFPKS1000	Discharge Needle	P20	4	1
		FFPKD12556	Holder, Discharge Needle	P20	5	1
		FFPLP0944	Spring	P20	6	1
		FFPLP09451	Tension Spring	P20	7	1
		FFPEY00641	Corona Wire	P20	8	1
		FFPXF09D802	Corona No.2/3 Frame Ass'y (for Taiwan)	P20	9	1
		FFPXF09D803	Corona No.2/3 Frame Ass'y	P20	9	1
		FFPHK09091	Mylar	P20	10	1
		FFPMF0968	Gear 2	P20	11	1
		FFPLG1428	Gear Shaft	P20	12	1
		FFPMF0970	Gear 4	P20	13	1
		FFPKM02821	Gear Stopper	P20	14	1
		FFPMF0972	Gear 6	P20	15	1
		FFPMF09691	Gear 3	P20	16	1
		FFPKQ01652	Gear Case	P20	17	1
		FFPMF0967	Gear 1	P20	18	1
		FFPMF0971	Gear 5	P20	19	1
		FFPMA05252	Roller	P20	20	1
		FFPLQ0439	Earth Plate (for Taiwan)	P20	21	1
		FFPMQ05221	Roller Plate	P20	22	1
		FFPKF12192	Front Guide	P20	23	1
		FFPHK09241	Guide Mylar	P20	24	1
		FFPWL0007	ZNR Ass'y (except Taiwan)	P20	25	1
		FFPFA0113	Shoulder Screw	P20	26	1
		FFPLQ0443	Earth Plate	P20	27	1
		FFPKN0380	Rubber Anti-vibration (except Taiwan)	P20	28	2
		FFPHK1006	Sheet (except Taiwan)	P20	29	1
		FFPJA0313	Rubber Holder, Front (except Taiwan)	P20	30	1
		FFPJA0312	Rubber Holder, Rear (except Taiwan)	P20	31	1

Left cover ass'y



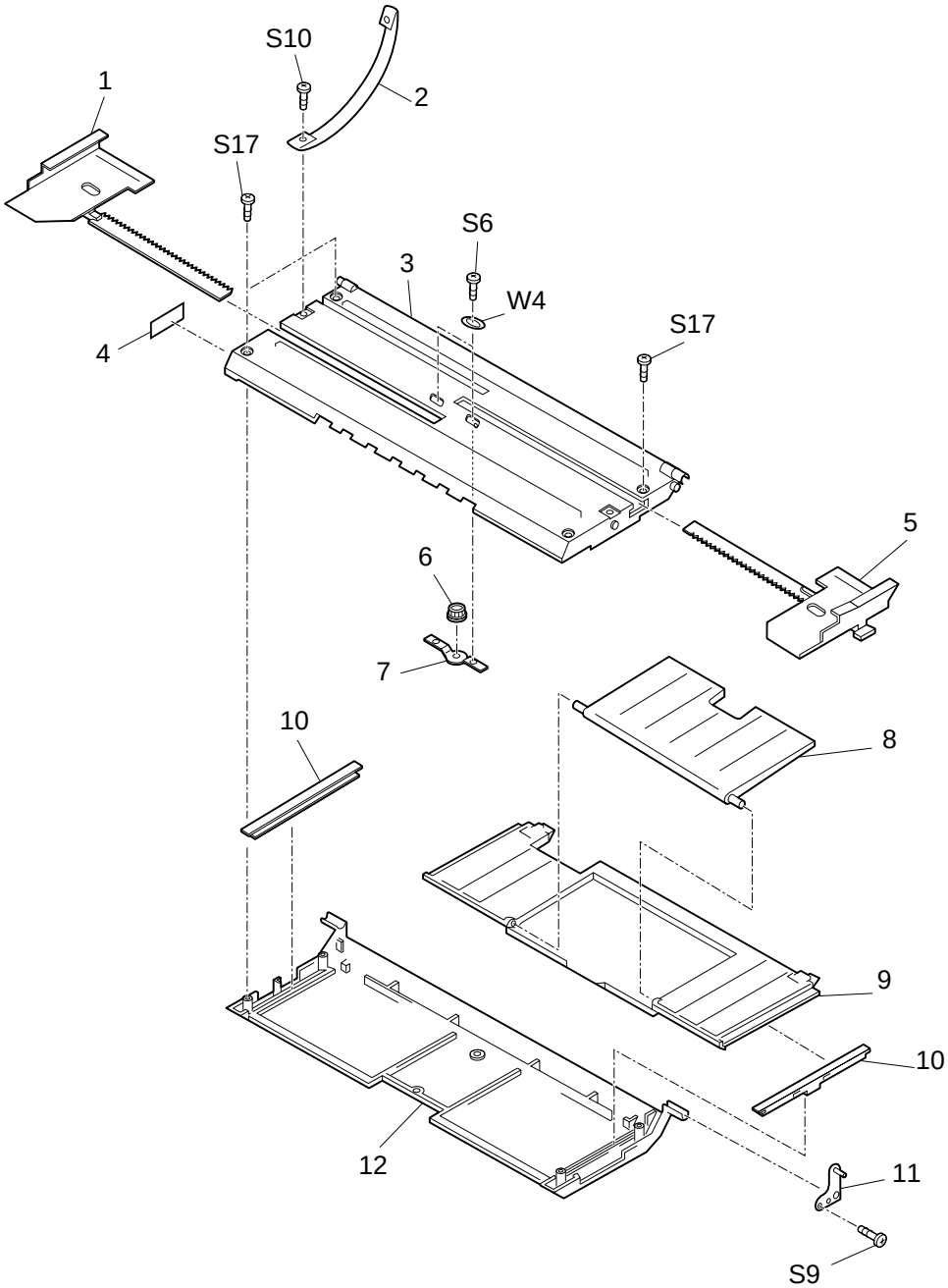
PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPLL05415	Latch 2	P21	1	1
		FFPMF0941	Gear, Fuser Idle	P21	2	1
		FFPLG1423	Shaft, Open/Close	P21	3	1
		FFPKA0150	Support 2	P21	4	1
		FFPLP09432	Pressure Spring 1	P21	5	1
		FFPKA0149	Support 1	P21	6	1
		FFPLL05402	Latch 1	P21	7	1
		FFPLP0956	Spring	P21	8	1
		FFPLQ03981	Pressure Spring	P21	9	1
		FFPLK03031	Bracket, Open/Close Arm Front	P21	10	1
		FFPLP0957	Ground Spring	P21	11	1
		FFPKE0983	Safety Cover	P21	12	1
		FFPKK0053	Harness Cover	P21	13	1
		FFPLQ0393	Spring	P21	14	1
		FFPLA0089	Switch Knob	P21	15	1
		FFPKR16572	Bracket 2	P21	16	1
		FFPMF0943	Gear, Idle	P21	17	1
		FFPKR1659	Hold Plate	P21	18	1
		FFPMF07501	Gear, Idle 33T/16T	P21	19	1
		FFPMF0883	Gear, Idle 2	P21	20	1
		FFPTE1950	Label, Power Indication	P21	21	1
		FFPLP0944	Spring	P21	22	2
		FFPDA00294	Base	P21	23	1
		FFPDF02581	Ground Plate	P21	24	1
		LWS1S	LWS	P21	25	2
		UAMS05S2	Clamp	P21	26	2
		FFPWC1555	KBE Harness	P21	27	1
		FFPKM02791	Tray Belt	P21	28	1
		FFPMF09401	Gear, Idle 4	P21	29	1

250 sheet paper tray



PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPUC01D60	Cassette Ass'y (FP-7713 for Taiwan)	P22	0	1
		FFPUC01D61	Cassette Ass'y (FP-7713 for North America)	P22	0	1
		FFPUC01D63	Cassette Ass'y (FP-7713 for others)	P22	0	1
		FFPUC01G40	Cassette Ass'y (FP-7715/FA-DS16 for Taiwan)	P22	0	1
		FFPUC01G41	Cassette Ass'y (FP-7715/FA-DS16 for North America)	P22	0	1
		FFPUC01G43	Cassette Ass'y (FP-7715/FA-DS16 for others)	P22	0	1
		FFPKS10041	Adjusting Plate	P22	1	1
		FFPLQ03961	Spring	P22	2	1
		FFPMF0829	Pinion Gear	P22	3	1
		FFPKM0277	Rack Guide	P22	4	4
		FFPLP09541	Release Spring	P22	5	1
		FFPLL05371	Release Lever	P22	6	1
		FFPQG00792	Paper Guide, Front	P22	7	1
		FFPQG00731	Paper Guide A, Rear	P22	8	1
		FFPTE1949	Label, Paper Overfill	P22	9	1
		FFPFG0463	Fulcrum Pin	P22	10	2
		FFPKM0293	Pad	P22	11	1
		FFPQG00751	Bottom Plate	P22	12	1
		FFPQG00781	Paper Guide, Rear	P22	13	1
		FFPPA0417	Paper Size Plate (for Taiwan)	P22	14	1
		FFPPA0418	Paper Size Plate (for North America)	P22	14	1
		FFPPA0419	Paper Size Plate (Others)	P22	14	1
		FFPQA014113	Main Frame	P22	15	1
		FFPHL0013	Cushion	P22	16	1
		FFPFJ0033	Touch Ring	P22	17	1
		FFPXC07D80	Cassette Boss Ass'y	P22	18	1
		FFPMV0044	Polyslider	P22	19	1
		FFPMA0517	DFP Roller	P22	20	1
		FFPLG14153	DFP Roller Shaft	P22	21	1
		FFPLP09514	Pressure Spring	P22	22	1
		FFPLK03081	DFP Arm	P22	23	1
		FFPMQ05141	Bushing	P22	24	1
		FFPLP0871	Pressure Spring	P22	25	1
		FFPHQ0046	Bushing	P22	26	1
		FFPKF1246	Paper Guide 5 (FP-7715)	P22	27	1
		FFPXC06D802	DFP Guide Plate Ass'y	P22	28	1
		FFPHK0930	Slide Sheet 2	P22	29	2
		FFPKM0281	Slider	P22	30	2

Sheet bypass tray



PCN	Part No. Original	Up-date	Description	Page No.	Ref. No.	Q'ty Per Unit
		FFPXF03D60	Sheet Bypass Ass'y	P23	0	1
		FFPQG0077	Paper Guide B, Rear	P23	1	1
		FFPKM02791	Tray Belt	P23	2	1
		FFPQB00401	Tray (1), Sheet Bypass	P23	3	1
		FFPKE0891	Stopper Cover	P23	4	1
		FFPQG0076	Paper Guide B, Front	P23	5	1
		FFPMF0829	Pinion Gear	P23	6	1
		FFPKS10081	Adjusting Plate	P23	7	1
		FFPQB00421	Tray B, Sheet Bypass	P23	8	1
		FFPQB0041	Tray A, Sheet Bypass	P23	9	1
		FFPKF1230	Rail, Bypass Tray	P23	10	2
		FFPKS1012	Plate	P23	11	1
		FFPKE0975	Tray Cover, Bypass	P23	12	1